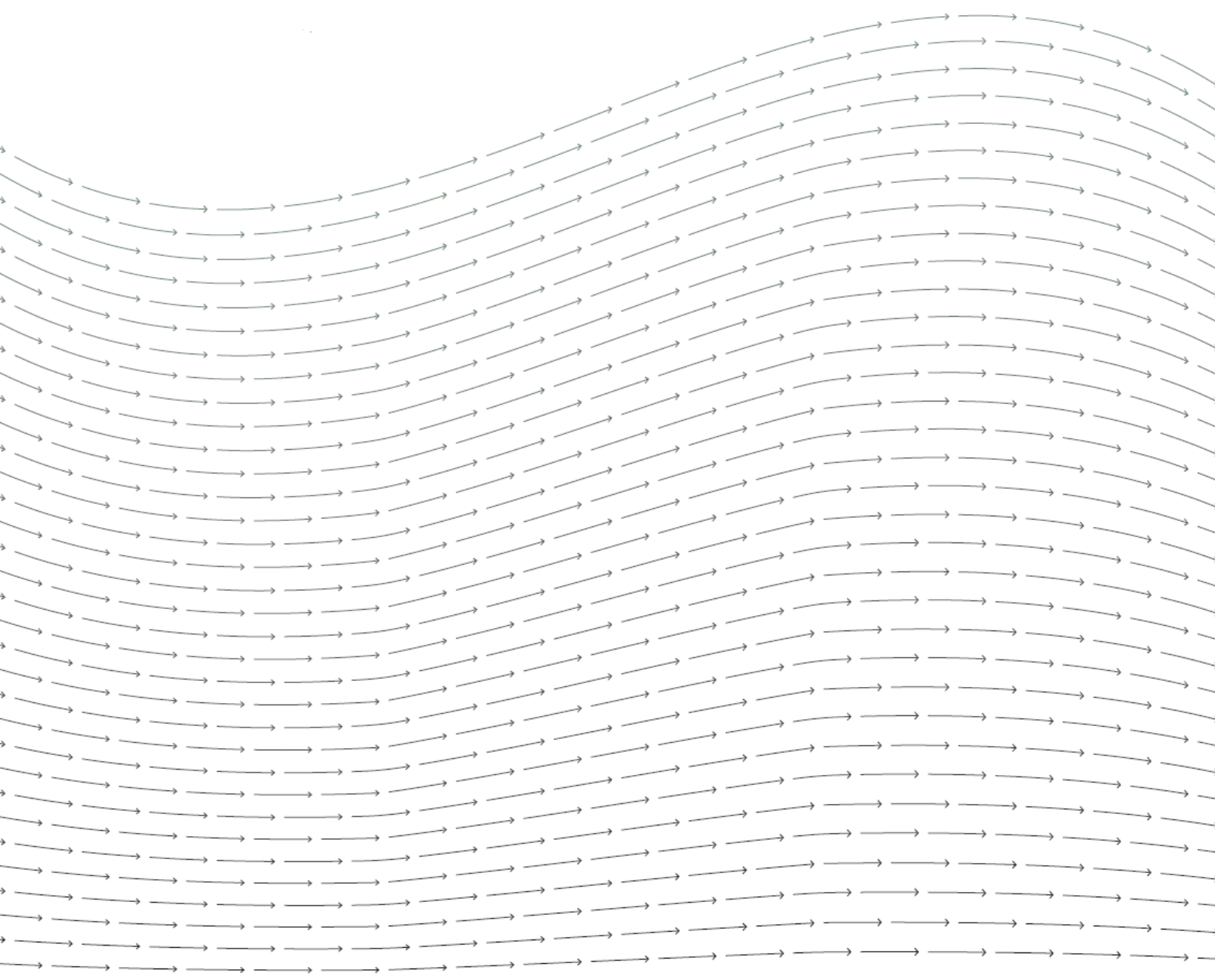




Allt Domhain Wind Farm Environmental Impact Assessment Report Volume 1: Written Statement

Energyfarm Allt Domhain Ltd

June 2025



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Allt Domhain Wind Farm

Environmental Impact Assessment Report Volume 1 Chapter 1: Introduction

June 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 9 turbines and associated infrastructure on land approximately 6.15km east of Glenbarr, in Argyll and Bute (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.
- 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, mixed turbines of 200m and 230m to blade tip have been assessed which would provide an associated capacity of up to 64.8MW. The proposed development would not contain battery storage.
- 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 – Energyfarm Allt Domhain Ltd

- 1.6 The Applicant is Energyfarm Allt Domhain Ltd, a Special Purpose Vehicle (SPV) set up and owned by Energiekontor UK Holding Ltd, part of the Energiekontor Group, with the sole purpose of delivering the proposed development.
- 1.7 Energiekontor UK Holding Ltd is a holding company for projects operated by Energiekontor UK Ltd an experienced renewable energy development company, formed in 1999. 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 several further 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 over 170 onshore wind and solar farms in Europe, with a total nominal power of more than 1.5 gigawatts. The company constructed the first 'no-subsidy' wind farm in the UK, Withernwick II in East Riding, Yorkshire.

Purpose of the EIA Report

- 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 Report

- 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 10: 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.
- 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 statutory 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: Ecology;
- Chapter 8: Ornithology;
- Chapter 9: Geology, Hydrology and Peat;
- Chapter 10: Cultural Heritage;
- 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 13) 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: Landscape and Visual, Cultural Heritage, Socio-economics;
 - RPS: Ecology and Ornithology, Geology, Hydrology, Hydrogeology and Peat;
 - TNEI: Noise;
 - Pell Frischmann: Transport and Access; and
 - Wind Power Aviation Consultants: aviation lighting design and assessment.
- 1.15 All other chapters have been prepared by the Applicant's Project Manager, Craig Potter. Craig is a Registered EIA Practitioner with the Institute of Environmental Management and Assessment (IEMA) and holds an honours degree in Geography and a Masters degree in Town Planning. He has over 17 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:
- 9 turbines;
 - Associated turbine compound areas including foundations and hardstanding areas for erecting cranes at each turbine location;

- On-site tracks connecting each turbine;
- Up to 18 new watercourse crossings and 5 upgraded watercourse crossings (dependent on access option);
- On-site substation;
- Underground cables linking the turbines to the substation, typically along internal tracks;
- A crossing of the Barr Water, should the relevant access option be adopted (see Chapter 3: Project Description for further information);
- A temporary construction compound including provision for onsite concrete batching; and
- Outline Habitat Management provisions as proposed within Technical Appendix 7.6 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 667.48 hectares (ha). The site boundary has undergone amendments since EIA Scoping to accommodate access optionality and link the main wind farm area to the A83.

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 Allt Domhain Wind Farm. In addition, updates including a link to the case file are provided at www.energiekontor.com/alltdomhain.
- 1.19 Deposit copies of the EIA Report can be viewed at the following locations:
- Campbeltown Library, Aqualibrium, Kinloch Road, Campbeltown, PA28 6EH
- 1.20 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.
- 1.21 Full printed copies can also be requested. Due to the size and cost of printed documents, charges for these are as follows:
- Volume 1: £50
 - Volume 2: £300
 - Volume 3: £500
 - Volume 4: £200
- 1.22 Requests should be made to Craig Potter, Project Manager, Energiekontor UK Ltd, craig.potter@energiekontor.com

Allt Domhain Wind Farm

Environmental Impact Assessment Report Volume 1 Chapter 2: EIA Methodology

June 2025

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2 EIA METHODOLOGY

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);
- Guidelines, methods and techniques used in the process of determining significance of effects; and
- Subject specific methodology is outlined in each of the technical chapters; Chapters 6 through to 13.

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 Scottish Ministers via 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 Energy Consents Unit, Argyll and Bute 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 14.

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.

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: Design Evolution. 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 with a tip height of either 200m or 230m. 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 usually 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.
- 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 micrositing 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.

Cumulative Effects and Interaction of Effects

- 2.38 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).
- 2.39 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.
- 2.40 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, topics 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.
- 2.41 The Applicant is aware of a request for a Scoping Opinion submitted by SSE Transmission for a 132KV overhead line to transport electricity from the consented Tangy IV Wind Farm and yet to be submitted Cnoc Buidhe Wind Farm proposal. This was received by the ECU on 10th March 2025 (ECU00006122). This proposal encroaches within the eastern extent of the site and discussions are ongoing between the Applicant and SSE to amend the OHL proposal to allow the two proposals to co-exist.
- 2.42 This however remains unresolved at the time of preparing this EIA Report. Accordingly, as per EIA good practice, assessment of a proposed cumulative scheme which as presently proposed by SSE, conflicts with an option over land held by the Applicant, is problematic for two reasons. Firstly, there is no guarantee over the final orientation of the OHL scheme and therefore any cumulative assessment would be based on inaccurate and speculative information - the uncertain nature of SSE optioneering, timescales, and lack of final design or land rights, meant that any assessment would be difficult. Secondly, given the preparation of the Allt Domhain Wind Farm EIA Report before the submission of the SSE Scoping Report it is best practice for schemes which come later to assess what is already present or ‘on the table’ at that point, and not vice versa.

Mitigation Measures and Monitoring

- 2.43 There is 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.

- 2.44 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.
- 2.45 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.
- 2.46 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

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

Allt Domhain Wind Farm

Environmental Impact Assessment Report Volume 1 Chapter 3: Project Description

June 2025

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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. Details of the construction, operational and decommissioning phases of the proposed development are also considered in this chapter.
- 3.2 Details of the iterative design process that resulted in the final design as set out in this chapter are detailed in Chapter 4: Design Evolution.
- 3.3 The proposed development will consist of the construction, 35-year operation and subsequent decommissioning of up to 9 wind turbines, along with ancillary infrastructure as described within this chapter.

The Site and Its Surroundings

- 3.4 Spanning approximately 667.48 hectares (ha), the Site location is highlighted within Figure 1.1 within Volume 2 of this EIA Report, whilst the site boundary to which the proposed development relates is contained within Figure 1.2 and subsequent figures.
- 3.5 The main windfarm area of the site is situated on a hill side gradually sloping downwards from east to west. The south-eastern extent of the site reaches a maximum elevation of 360m AOD, with the summit of Cnoc Donn (405m AOD) just beyond the site boundary. The eastern boundary of the site meets the boundaries of the Beinn an Tuirc I and II to the east. The western extent of the main wind farm area slopes down to form a valley and meets the eastern extent of the Blary Hill Wind Farm boundary.
- 3.6 The site extends in a corridor fashion to the west around Blary Hill (272m AOD) and Blary Hill wind farm towards the Barr Water and Arnicle. The site access area extends westwards down the Barr Glen connecting with the A83 at two separate points: at Glenbarr village to the south, and north of Glenbarr primary school at the northern point of connection.
- 3.7 The wider landscape comprises of a rolling terrain, the site area and wider landscape to the north, south, and west slopes generally down westwards towards the A83 and coastline. To the east of the site the land rises towards the spine of the peninsula and then slopes eastwards down to the B842 and the peninsula's eastern coastline.
- 3.8 Several watercourses flow from east to west through the main wind farm area of the site, Allt an Tuirc, Allt Domhain (from which the development takes its name), and Allt a' Bhlair. All three watercourses join Abhainn a' Chnocain which flows south to north at the foot of the hill slope to the west of the main windfarm area. This joins the Barr Water at Arnicle and flows east through Glen Barr towards the coast. As such the site is well drained. Multiple additional minor watercourses and drainage ditches flow through the site access area, with the marked Allt an Uamha flowing from Cruach Muasdale to the north as a tributary to the Barr Water.

- 3.9 The closest settlement is Glenbarr, approximately 6.15km east of the main wind farm area. Further residential properties are scattered within Barr Glen. There is no residential property within the wider area of the site to the north or south of the site, and a small amount of scattered residential property to the east along the B842. Settlements within 10km of the site include Carradale, Saddell and Muasdale.
- 3.10 The nearest trunk road is the A83 which the site boundary extends to and will be used to access the site from the Port of Entry, Campbeltown.
- 3.11 The site is described in detail in respect of environmental baseline conditions within each technical EIA Report chapter.

Description of Proposed Development

- 3.12 The proposed development is illustrated on Figure 3.1a and Figure 3.1b and would consist of the following principal components.
- Up to 9 turbines;
 - Associated turbine compound areas including foundations and hardstanding areas for erecting cranes at each turbine location;
 - On-site tracks connecting each turbine;
 - Up to 18 new watercourse crossings and 5 upgraded watercourse crossings (dependent on access option);
 - On-site substation;
 - Underground cables linking the turbines to the substation, typically along internal tracks;
 - A crossing of the Barr Water, should the relevant access option be adopted;
 - A temporary construction compound including provision for onsite concrete batching; and
 - Outline Habitat Management provisions as proposed within Technical Appendix 7.6 within Volume 4 of this EIA Report.
- 3.13 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.
- 3.14 **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.**
- 3.15 The proposed development would provide approximately 64.8MW of installed capacity based on a candidate turbine of up to 7.2MW (depending on the final turbine model chosen). It is estimated by the Applicant that this installed capacity could generate approximately 249,671MWh of renewable electricity each year which would be expected

to power the equivalent of approximately 72,117 homes on average each year¹, or provide 1.38 million full battery charges for electric vehicles per year².

- 3.16 The planning 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.**
- 3.17 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** – 9 wind turbines (see Figure 3.2a & 3.2b 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 180m x 70m 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** – The total length of new or upgraded track will be dictated by the access route as two options are currently proposed within the application (see further within this Chapter). The total length of track will be approximately 11.07km should the northern access option be realised, or 10.85km should the southern access option be realised. Tracks are required for construction and maintenance vehicles to access 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 is dependent on turbine supplier requirements. New 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 2.01km of floating track. Turning heads would also be required to facilitate the delivery of turbine components.
 - **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).

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" July 2023

² Based on a large electric vehicle requiring 180kWh for a full charge.

- **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);
- **Bridge crossing of Barr Glen water** – A proposed bridge crossing is required to cross the Barr Water should the northern route be used. An outline design can be found within Figure 3.12 of Volume 2 of the EIA Report, with final detailed design subject to planning condition; and
- **Substation building** – Up to 90m x 90m space would be required for the construction of an up to 132kV substation (with detail to follow within an appropriate condition).

Wind Turbines

- 3.18 Turbines would be of tubular steel construction, finished in a typical off-white matt colour and comprise of 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 both 200m and 230m to tip are considered. The turbine rotor diameter for all 9 turbines is 162m. Turbines at 200m to tip will have a hub height of 119m, turbines at 230m to tip will have a hub height of 149m. The below Table 3.1 details which turbines are proposed at the varying heights.
- 3.19 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 micro-siting allowance)

Turbine	Easting	Northing	Tip Height (m)
1	173287	637554	200
2	174290	637477	200
3	172966	637216	200
4	173652	637178	200
5	172627	636885	230
6	172647	636426	230
7	173276	636755	230
8	172831	635995	230
9	173270	636298	230

- 3.20 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.
- 3.21 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.

Access and Site Tracks

- 3.22 There are two options for accessing the site. These are generally referred to throughout the EIA as the northern route or the southern route, and can be viewed on Figure 3.1 within Volume 2. The Applicant has sought to provide environmental assessment of both routes within this EIA Report, and seeks to demonstrate both could be used subject to appropriate conditions. For the avoidance of doubt however, the Applicant will seek a condition which limits the final choice of route to be used and it is intended that only one will be used when any future consent is implemented.

Overview of Northern Route

- 3.23 The northern route would exit the A83 from a newly formed junction (see Figure 3.11 and Chapter 12: Transport and Access). It would use the contours of the existing farmland to take the line of best fit westwards to eastwards, with a new crossing of the Allt an Uamha required. At the northern extent of the site, again using the gradient and with minor earthworks as required, the track would incorporate an 's-bend' southwards, following a minor informal track to then cross the Barr Glen road. A new crossing of the Barr Water is then required. The track would then follow field boundaries to minimise impacts upon agricultural operations, to then move uphill to the south (towards Blary Hill) to then meet the potential southern route (which would not be built in the event of the northern route being used) and then entering the wind farm area (as per Figure 3.1a).
- 3.24 If the northern route was used, this would comprise the construction of approximately 6.92km of new cut track, with floating track not required. When added to the wind farm area track requirements (4.15km of new cut track and 2.01km of new floating track) the overall requirement would be for 11.07km of new cut track and 2.01km of new floating track; a total of 13.08km in total.
- 3.25 This route would require up to eighteen new watercourse crossings in addition to the four new watercourse crossings required within the wind farm area.

Overview of Southern Route

- 3.26 The southern route would use the existing Major's Field within the village of Glenbarr, operating the same route as RES' Blary Hill scheme, progressing down the existing Barr Glen road before using the Blary Hill wind farm entrance. Abnormal loads would continue through the entrance and use existing track until the point where the existing track bends southwards to facilitate the Blary Hill Wind Farm. Instead of following this track, a new track would be constructed straight from west to east, to then take a high and relatively straight line towards the point where the two access options meet (refer to Figure 3.1b).
- 3.27 If the southern route was used, in addition to the 4.15km of new cut track and 2.01km of floating track within the wind farm area, approximately 2.49km of new cut track would be required (to the east of Blary Hill), and dependent upon further detailed study to be conditioned, potential upgrading of 4.21km of the Barr Glen road including a series of passing places and traffic management provisions.

- 3.28 In addition to the four new watercourse crossings within the wind farm area, the southern route option would incorporate eight new watercourse crossings and five upgraded watercourse crossings.
- 3.29 **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.**
- 3.30 Where new sections of access track are required, whether cut or floating, these would have a running surface of approximately 6m where possible. 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.
- 3.31 Following detailed Ground Investigation, localised re-profiling of existing tracks may be required to fulfil turbine manufacturer specifications on permissible gradients.
- 3.32 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 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.
- 3.33 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.
- 3.34 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.
- 3.35 On completion of construction, the remaining excavated mineral soil and subsoil would be levelled alongside the access tracks. A typical new track cross section is shown on Figure 3.4.
- 3.36 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.

- 3.37 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.
- 3.38 The access tracks would be retained throughout the operational life of the proposed development to enable maintenance of the turbines and also allow the farming operations present on-site additional track to ease movement across the land.

Turbine Compounds

- 3.39 At the location of each turbine foundation, a hardstanding area would be constructed to provide support for the cranes used for turbine erection. These hardstanding's 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.
- 3.40 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.
- 3.41 Hardstanding's 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.
- 3.42 The hardstanding's would be excavated to bedrock and any peat present would be appropriately stored and re-used (see Chapter 10: Geology, Hydrology and Hydrogeology).
- 3.43 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.
- 3.44 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.
- 3.45 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.

- 3.46 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.
- 3.47 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.
- 3.48 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.
- 3.49 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.
- 3.50 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

- 3.51 Turbines would likely be transported by boat to the Port of Campbeltown, 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 local residents and traffic, particularly that using the A83.
- 3.52 A full route assessment is contained within Technical Appendix 12.1 whilst descriptions of the access routes is explained in preceding sections within this Chapter.
- 3.53 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.

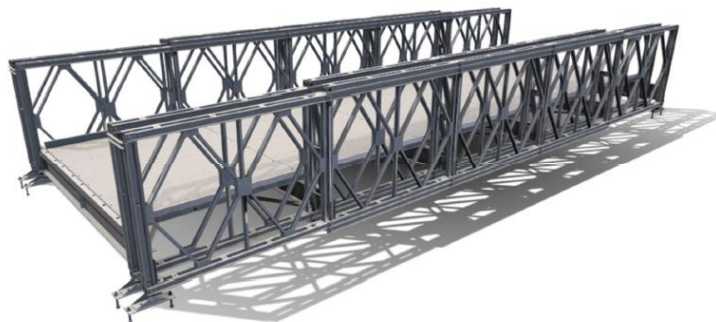
- 3.54 The connection of the tower to the foundation would be made by using holding down bolts or with a short cylindrical steel section embedded in the foundation slab. The choice of holding down system would depend on the wind turbine supplier. The sequence of construction of the connection between the tower and foundation depends on which system is used.
- 3.55 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.
- 3.56 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.
- 3.57 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.
- 3.58 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.
- 3.59 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.
- 3.60 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.

- 3.61 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.

Bridge Crossing

- 3.62 Should the northern option be used for access, a crossing of the Barr Water is required.
- 3.63 The bridge crossing would be subject to detailed design which would be controlled under condition.
- 3.64 For this crossing, the option with the least impact on the watercourse is a single span solution of 15m to 25m, spanning the potential flood zone. Whilst this option avoids the risks associated with working with the flood zone, the proposed superstructure will need to be adequate to support AIL and construction/operational traffic. The ground conditions and foundations also need to adequately support significant abutment loads. The structural viability of this would need to be determined once ground information and flood modelling are available.
- 3.65 It is likely that the bridge would be prefabricated which means that it can be easily assembled on site. The build time is fast and usually completed in a matter of days. It also means the bridge can be easily designed/customised for any load case or special vehicle. The prefabrication means that the bridge is delivered on standard lorries so there is no need for special loads or bridge-specific traffic plans.
- 3.66 Diagram 1 below demonstrates a potential candidate bridge with module length of around 3m, carriageway widths of up to 7.35m and up to 1m for pedestrian space.

Diagram 1: Compact Single span pre-fabricated bridge



High Voltage Cabling

- 3.67 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.
- 3.68 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.

- 3.69 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.
- 3.70 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

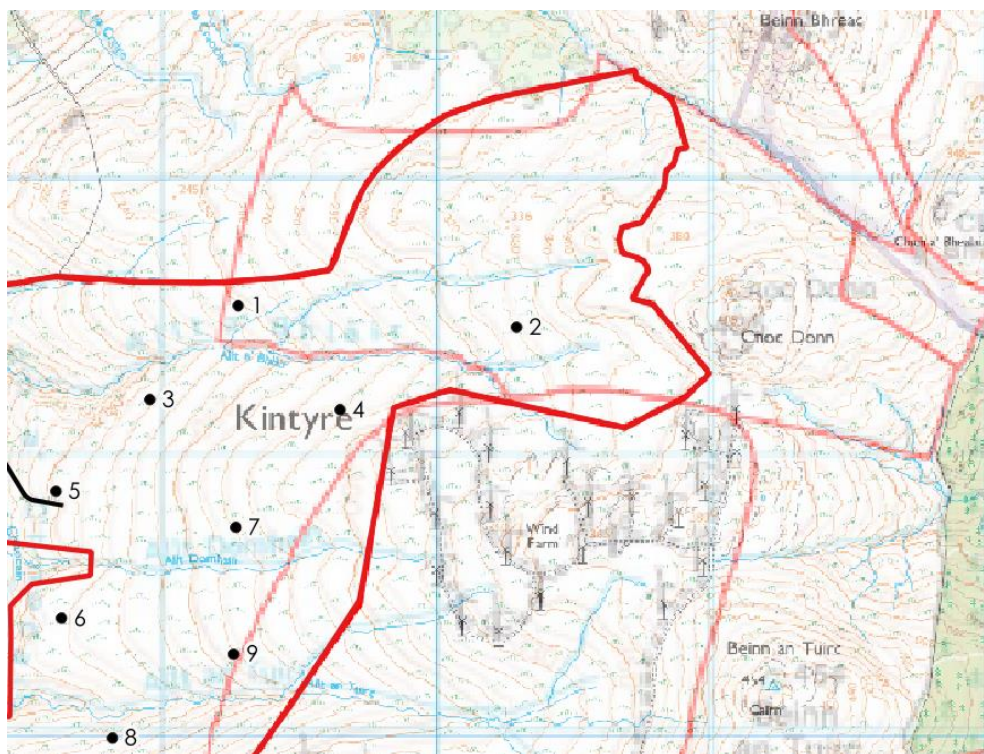
- 3.71 The proposed development has provided sufficient space for up to a 90mx90m, 132kV substation compound which would be located to the west of the site as demonstrated within Figure 3.1a. Within this there would be a requirement for a wind farm substation compound of 45m by 20m, with a separate compound belonging to SSE Networks which would be provided to their own specifications.
- 3.72 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.
- 3.73 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. The building would not be permanently manned as the wind farm would be controlled remotely from a central control facility.

Habitat Management

- 3.74 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 7.6 within an Outline Habitat Management Plan (OHMP) and spatially defined to the north-east of the site. In outline, the measures include the restoration of degraded peatland on the site.

- 3.75 There is a degree of apparent interaction between the north-east of the site, which is proposed for Habitat Management for the proposed development. Scottish Power Renewables (SPR) intend to extend the lifetime of Beinn an Tuirc 1 Wind Farm and have assigned the land in feint underlay below as part of their HMP. Within this, the land that overlaps the site boundary is described within the HMP which accompanies the SPR application, as a 'buffer'. The ecological requirement for this buffer is not explained within the document, nor do SPR have land rights to promote it as such given it encroaches into the Allt Domhain site.
- 3.76 Given the SPR HMP buffer area serves no ecological function, SPR has no land right to use the additional area, and it was not part of the original Beinn an Tuirc HMP area, it is appropriate for the uses put forward in this application. The outline HMP included within this application within Technical Appendix 7.5, along with the assessment within Chapter 7: Ecology of this EIA Report, demonstrates that the aims of the HMP and the presence of the proposed development does not conflict with adjacent HMP objectives.

Diagram 2: Interaction of Proposed Development and SPR HMP areas

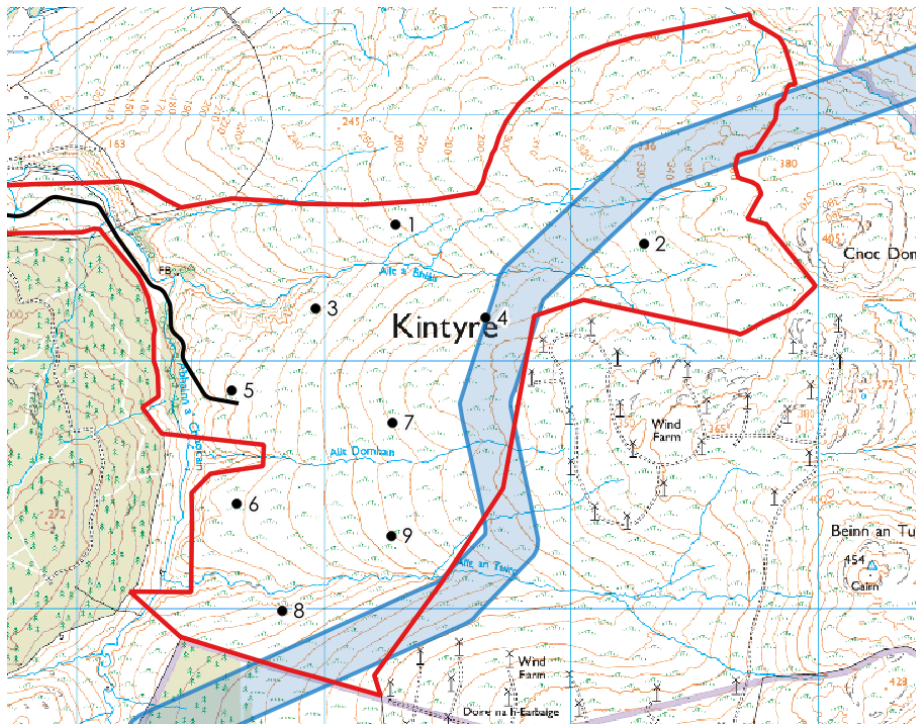


Tangy IV and Cnoc Buidhe Overhead Line Connection to Carradale

- 3.77 As noted within the Energy Consents Unit case file ECU00006122, Scottish Hydro Electric Transmission (SHET) have submitted a Scoping Request to the Scottish Ministers related to a future Section 37 application for double circuit 132kV overhead line (OHL) to link the consented Tangy IV Wind Farm and the application-stage Cnoc Buidhe Wind Farm to Carradale substation.

- 3.78 The alignment presently suggested by SHET within their consultation and within their Scoping Report is not compatible with, nor has taken consideration of the proposed development and discussions have been underway for some time between the Applicant and SHET to resolve this. Resolutions may include SHET relaxing their set back distances, or may involve SHET examining alternative routes that do not pass through the land under control by the Applicant.

Diagram 3: Incursion of SSE OHL into the Site



- 3.79 Given ongoing grid reform and the consented status of Tangy IV and application status of the Cnoc Buidhe project, SHET have an obligation to provide a connection for Tangy IV. The status of Cnoc Buidhe in the grid queue after grid reform due to take place in Summer 2025 remains to be seen. It is unknown at the time of writing this EIA Report whether this would impact the current proposals for the OHL.
- 3.80 At the time of writing, given the lack of land rights that SHET have for its proposed OHL through the Allt Domhain Wind Farm, and given the final orientation and route is unknown for the reasons given above, it is not possible to provide any robust assessment of the cumulative effect of both schemes within this EIA Report. In-keeping with good practice, it will be for the OHL project to assess the cumulative interaction with Allt Domhain at such time the appropriate land rights are obtained and any amendments are made. The Applicant remains committed and willing to work through this interaction with SHET and the appropriate regulations.

Other Construction Considerations

- 3.81 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 proposed development has taken full account of these regulations

- 3.82 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

- 3.83 A detailed Construction Method Statement (CMS) would be produced by the construction contractors and agreed with Argyll and Bute 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.
- 3.84 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.
- 3.85 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.
- 3.86 All the above will take cognisance of best practice guidance and be agreed with all applicable regulators.

Temporary Highway Works

- 3.87 Some off-site access works would be required to facilitate turbine delivery 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, required by a condition to the consent.
- 3.88 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 final candidate turbine.

Construction Works Duration and Sequencing

- 3.89 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, and recent grid reforms are currently underway with grid queue sorting uncertain. 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 April 2030, and therefore the earliest construction could potentially commence is late 2028.
- 3.90 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.
- 3.91 Should deemed planning permission be granted then, it is likely that construction hours would be restricted via means of a planning condition imposed by Argyll and Bute Council as part of the consent.
- 3.92 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 Argyll and Bute 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 Argyll and Bute Council.
- 3.93 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 Argyll and Bute Council.
- 3.94 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

- 3.95 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.
- 3.96 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.
- 3.97 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.

Concrete Requirements

- 3.98 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.

Commissioning of Mechanical and Electrical Equipment

- 3.99 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

- 3.100 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 Argyll and Bute Council.

Construction Methodology and Programme

- 3.101 This chapter provides an outline description of the methodology and programme that would be employed during the construction phase of the proposed development.
- 3.102 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.
- 3.103 The programme of construction deliveries shown in Table 3.2, below, 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																		
Construction of main construction compound																		
A83 Junction Construction (if required)																		
Access track construction																		
Bridge construction																		
Turbine compound construction																		
132kv Substation construction																		
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

- 3.104 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.
- 3.105 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 Argyll and Bute Council and this is expected to be enforced by way of an appropriately worded planning condition.

Maintenance

- 3.106 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.
- 3.107 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.
- 3.108 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.
- 3.109 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.
- 3.110 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.

Allt Domhain Wind Farm

Environmental Impact Assessment Report Volume I Chapter 4: Design Evolution

June 2025

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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 of this EIA Report.

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 3.1a & b within Volume 2 of this EIA Report show the final infrastructure design layout submitted as part of this application.
- 4.3 A key reason for the selection of this site was its position in an undulating environment between other operational wind farm developments on the spine of the Kintyre peninsula, an area with conditions favourable to wind energy production. The site is positioned on a hillside sloping east to west with the summit of Cnoc Donn (405m AOD) to the east and the Abhainn a' Chnocain watercourse flowing at the foot of the slope to the west. The design strategy has utilised the sloping environment to shield the perceived turbine tip height, moving turbine foundations to lower elevations.
- 4.4 The site sits between the operational wind farms of Blary Hill and Beinn an Tuirc 1 & 2, with the turbines of Achadaduie and Beinn an Tuirc 3 in the wider local landscape. The design strategy has considered these turbines as key features in achieving a coherent design. Turbines have been positioned to allow the perception of a similar tip height to the smaller, more elevated turbines of Blary Hill and Beinn an Tuirc. The design strategy sought to minimise the extents to which the proposed development increased the visibility of turbines in the local area, with many points from which the proposed development is visible already a visual receptor of the Blary Hill and Beinn an Tuirc turbine cluster.
- 4.5 The site boundary, whilst larger than the turbine envelope, was drawn to allow flexibility in layout, infrastructure, access and habitat management.

Site Selection Methodology and Alternatives

- 4.6 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.
- 4.7 In reviewing the option of alternatives, the proposed development is the result of a GIS 'sieve' mapping process, 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 3.1a & b within Volume 2 of this EIA Report

- 4.8 The site location on the spine of the Kintyre Peninsula is within the *Upland Forest Moor Mosaic* LCT and demonstrates 'opportunities' for wind farm development. These relate to the simple landform and forested hills which are sparsely populated and remote from the coastline. The design process has therefore considered the local landscape character, scale, form, and the effects on views and visual receptors in the surrounding area.

GIS Constraints Mapping

- 4.9 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:
- 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;
 - Built Environment – proximity to built, proposed, or consented wind farms;
 - 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

- 4.10 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, the NOABL wind speed database¹.

Access Suitability

- 4.11 An extensive access design process has been undertaken; this process has assessed multiple access route options and track alignments against key considerations such as:
- Local disruption: routes assessed to determine which options mitigate against excessive public disruption.
 - Swept path analysis: assessing the feasibility of transporting turbine components along each route.
 - Environmental impacts: the environmental implications of a new infrastructure required to facilitate an access route
 - Highway infrastructure: maximising existing highway infrastructure, where possible.
- 4.12 The design evolution process of the proposed access route options is detailed below. Full details on the proposed access routes are provided in Chapter 12: Transport and Access.

Selection of the Site

- 4.13 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 significant 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;
 - Landscape – the site is sufficiently out with any nationally or locally designated landscapes. Further, the site benefits from topographical screening from coastal parts of the North Arran National Scenic Area (NSA);
 - Residential separation distances – the site achieves separation distances in excess of 1.8km from turbines to the nearest residential properties;
 - Transport infrastructure – the site is positioned close to a trunk road with two options available for transporting turbine components from highway to site; and
 - Grid connection – the applicant has consulted with the local distribution network operator to ensure infrastructure can accommodate the electricity generated by the proposed development. The site benefits from a close generation supply point at Carradale Substation reducing the need for additional infrastructure to facilitate this. As of June 2025, the proposed development has a transitional grid connection offer.

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.

Design Evolution

- 4.14 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 hard standings, 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.
- 4.15 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:
- Residential properties: a residential buffer / stand-off distance of at least 1.8km from residential properties has been achieved;
 - Distance between turbines: to minimise the turbulent interaction between turbines they have been spaced in a suitable manner;
 - Environmental constraints: the assessment chapters of this EIA Report discuss these considerations and issues in full;
 - 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 and other cumulative development in the area. 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 3D model/wireframes were generated for views from key locations around the Site; and
 - Ground conditions: the layout design minimises the impact to areas of peat. Watercourses and critical slope gradients have also been avoided where possible
- 4.16 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 several other designs between principal iteration stages. The principal iterations are shown in Images 1-5.
- 4.17 Following the base position illustrated in Image 1, the Applicant sought the professional guidance of landscape architects to assist in developing the layout. 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 *Mull of Kintyre Upland Forest Moor Mosaic LCT*, described by the Argyll and Bute Landscape Wind Energy Capacity Study (2017).

First Design Iteration – Initial 12 Turbine Layout

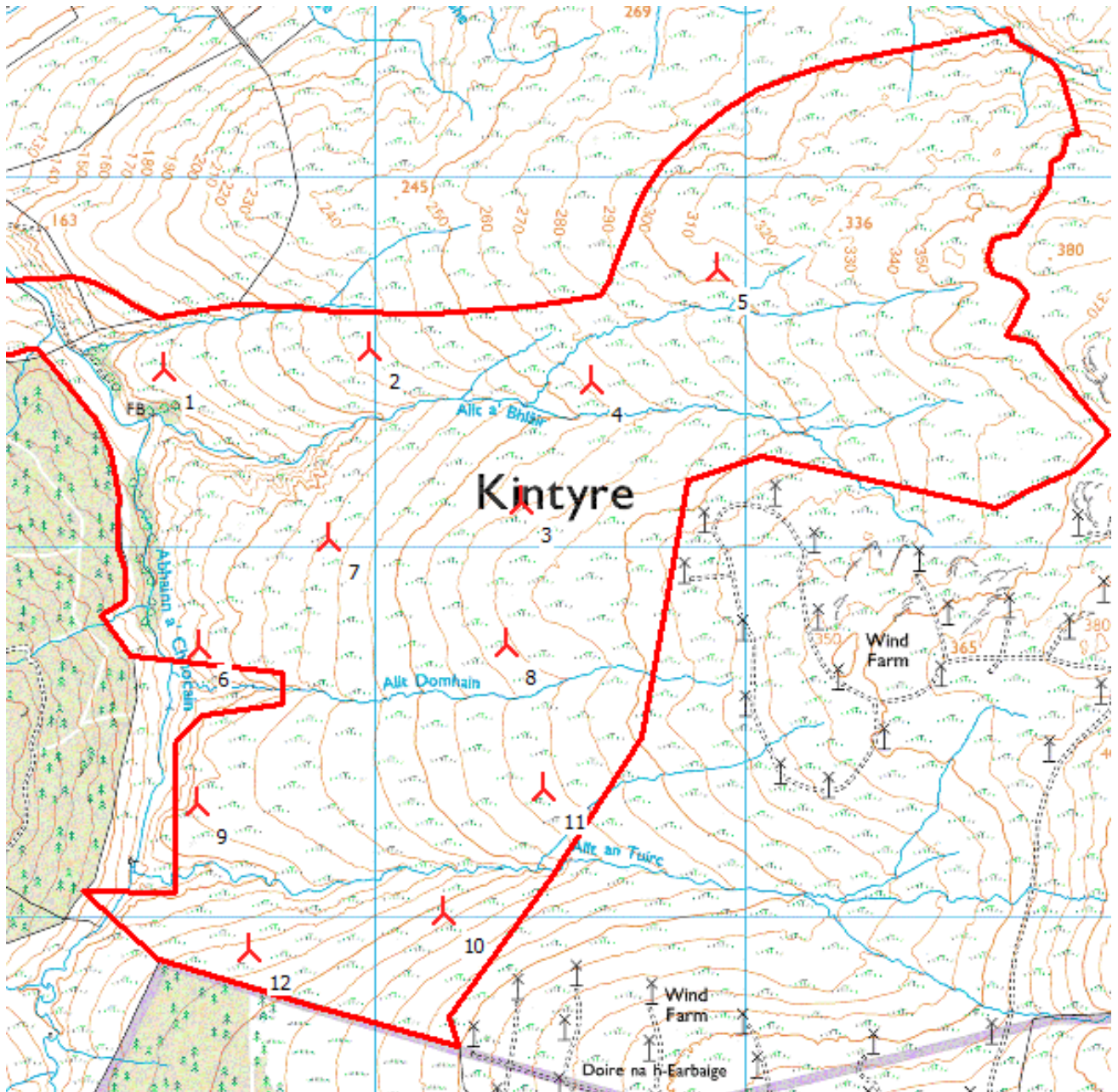


Image 1: First Design Iteration

4.18 Image 1 displays the first design iteration which consisted of 12 wind turbines. The layout was based on land considered to be available and adhered to the following principal environmental and technical constraints:

- Initial 3x3 turbine ellipses used to position turbines and achieve suitably spaced design;
- Applying a residential buffer of 1.2km between wind turbines and residential properties as a starting point; and
- Applying a watercourse buffer of 50m between wind turbines and watercourses.

- 4.19 The first design iteration comprised of a mix of 200m and 230m tip heights. This design attempted to maximise the sites energy yield whilst being conscious from the first step that the site would likely require a mixed tip height approach in order to sit appropriately within the landscape.
- 4.20 This layout represents what the Applicant felt was a likely 'maximum' layout, acknowledging that Turbine 1 may be too close to residential properties and acknowledging potential buildability concerns with turbines 6 and 9.

Second Design Iteration – 12 Turbine Scoping Layout

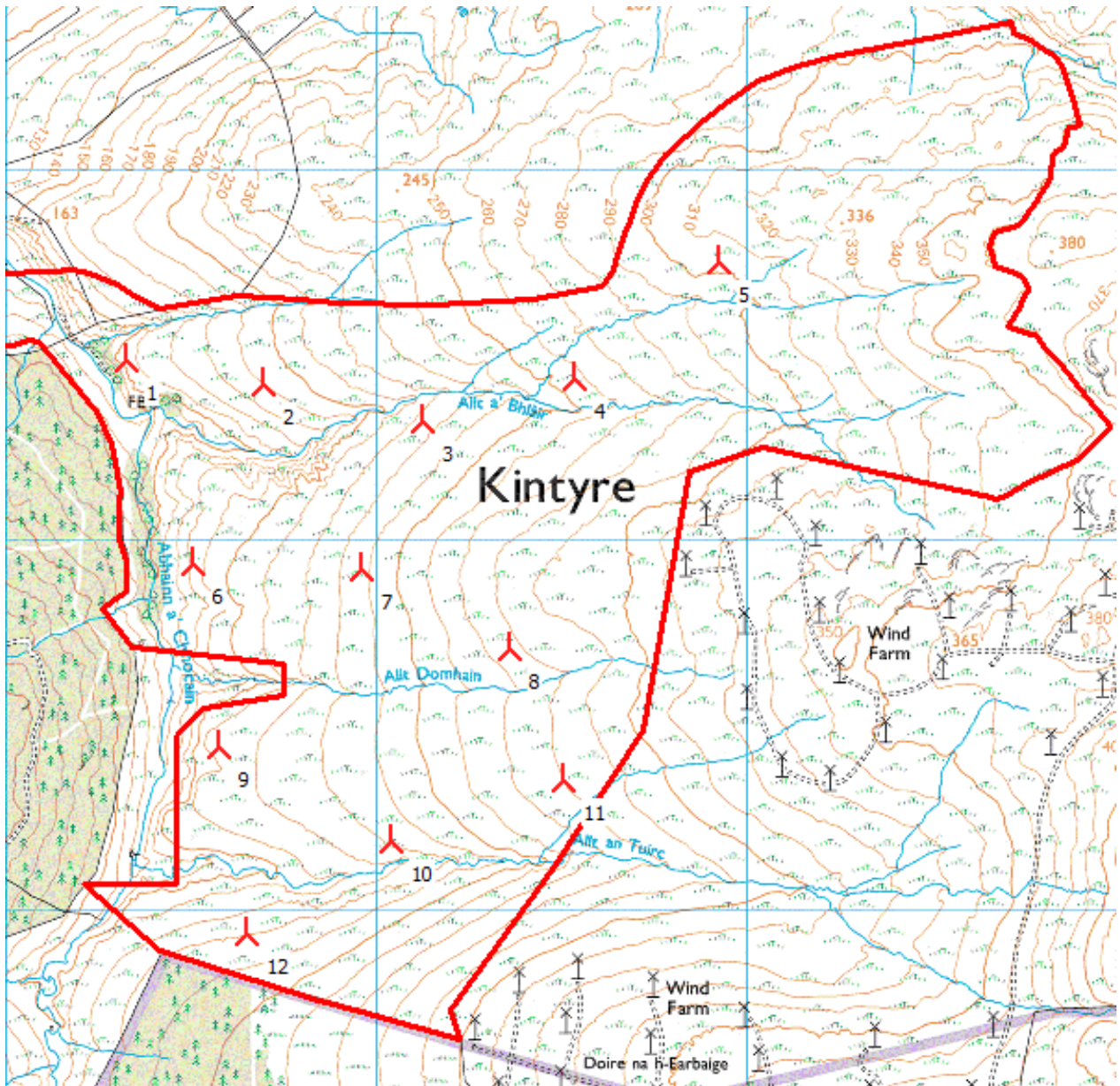


Image 2: Second Design Iteration

- 4.21 The second design iteration comprised of 12 turbines with mixed tip heights of 200m and 230m. This layout was the basis for the Scoping Opinion sought from the Energy Consents Unit (ECU) in February 2021. The layout maintained the buffers around watercourses and residential properties. As onsite survey works had progressed this layout took account of onsite ecological and ornithological constraints in addition to baseline geology, hydrology and peat surveys.
- 4.22 The second design iteration considered peat condition surveys to assess the quality of all onsite peat. The site, previously designated as class 1 peat, was assessed to contain significant areas of heavily drained peat. As such the design was amended, moving turbines from peatland that retained a good condition to areas of poor peatland condition and/or at shallower depth.

- 4.23 The design considers, and attempts to maximise, topographical on-site features to minimise landscape and visual impact and align the proposed development with the wider cumulative landscape of the area. Turbines were repositioned in the east and southeast of the site, notably turbines 3 and 10, moved down the hillside to a lower elevation. This enhanced the cumulative cohesion aligning turbine tip heights closer to the surrounding developments, of Blary Hill and Beinn an Tuirc, operating with lesser turbine tip heights but positioned on elevated land. Additionally, turbine 6 was moved eastwards to increase its buildability.
- 4.24 Throughout the design process layout iterations were modelled from key local viewpoints and regional designated landscapes, notably the Mullach Buidhe summit located in the North Arran NSA and the local viewpoints of Glenbarr and the War Memorial.

Third Design Iteration – Interim 10 Turbine Layout

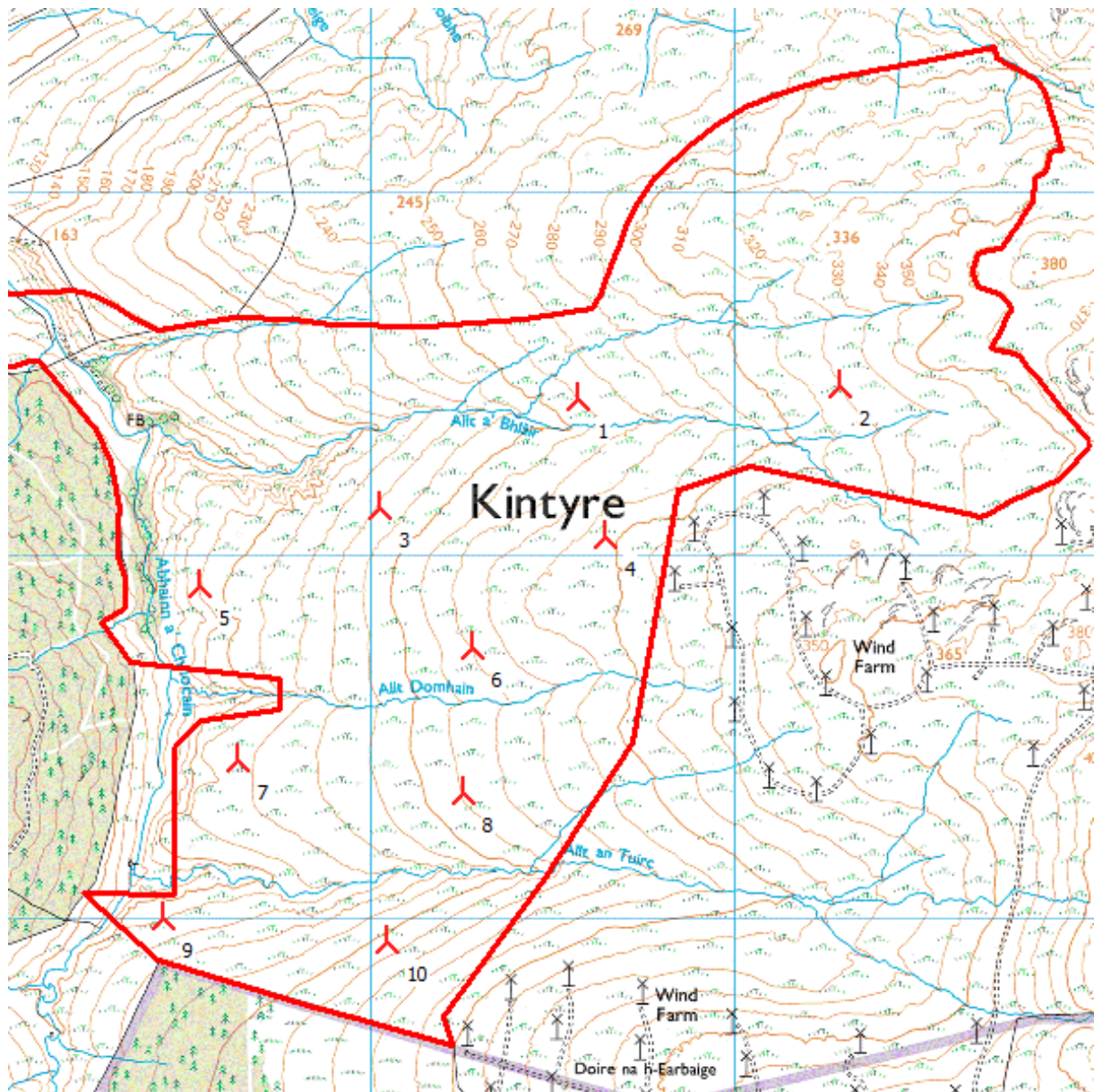


Image 3: Third Design Iteration

- 4.25 Image 3 displays the third design iteration which comprised of 10 wind turbines. The design changes implemented in the third design iteration stage were predominantly based on the feedback received as part of the scoping process.
- 4.26 Further consideration of peat was carried out, with the interpolated peat results reflected against the Scoping layout. The results, in addition to analysis of the peat condition survey, refined the developable area of the site and effected alterations to the position of several turbines to satisfy statutory requirements, most notably Turbine 5 of the Scoping layout.
- 4.27 The northern and north-eastern extents of the site were removed from the developable area and highlighted as locations suitable for habitat and peatland restoration and enhancement.

- 4.28 The north-western site area was additionally used as clear setback from the Arnicle cluster. Consequently, the northern most turbine in the scoping layout (design iteration 2) was relocated southwards to improve amenity.
- 4.29 Following receipt of the Scoping Opinion, engagement with involved parties in surrounding properties, and further review of the landscape and visual impact of previous designs the decision was taken to reduce the design from 12 to 10 turbines. The reduced layout was redesigned within the refined developable area to maximise spacing requirements between turbines in a 10-turbine design and reduce wake effect. A 10-turbine design was found to significantly enhance the position of the design strategy, reducing the footprint of the developable area thus achieving a design largely positioned in the area between Blary Hill and Bein an Tuirc wind farms. Thus, minimising the lateral spread of the turbine cluster when viewed from elevated positions within the NSA, or viewpoints in the Glenbarr area.

Fourth Design Iteration – Interim 9 Turbine Layout

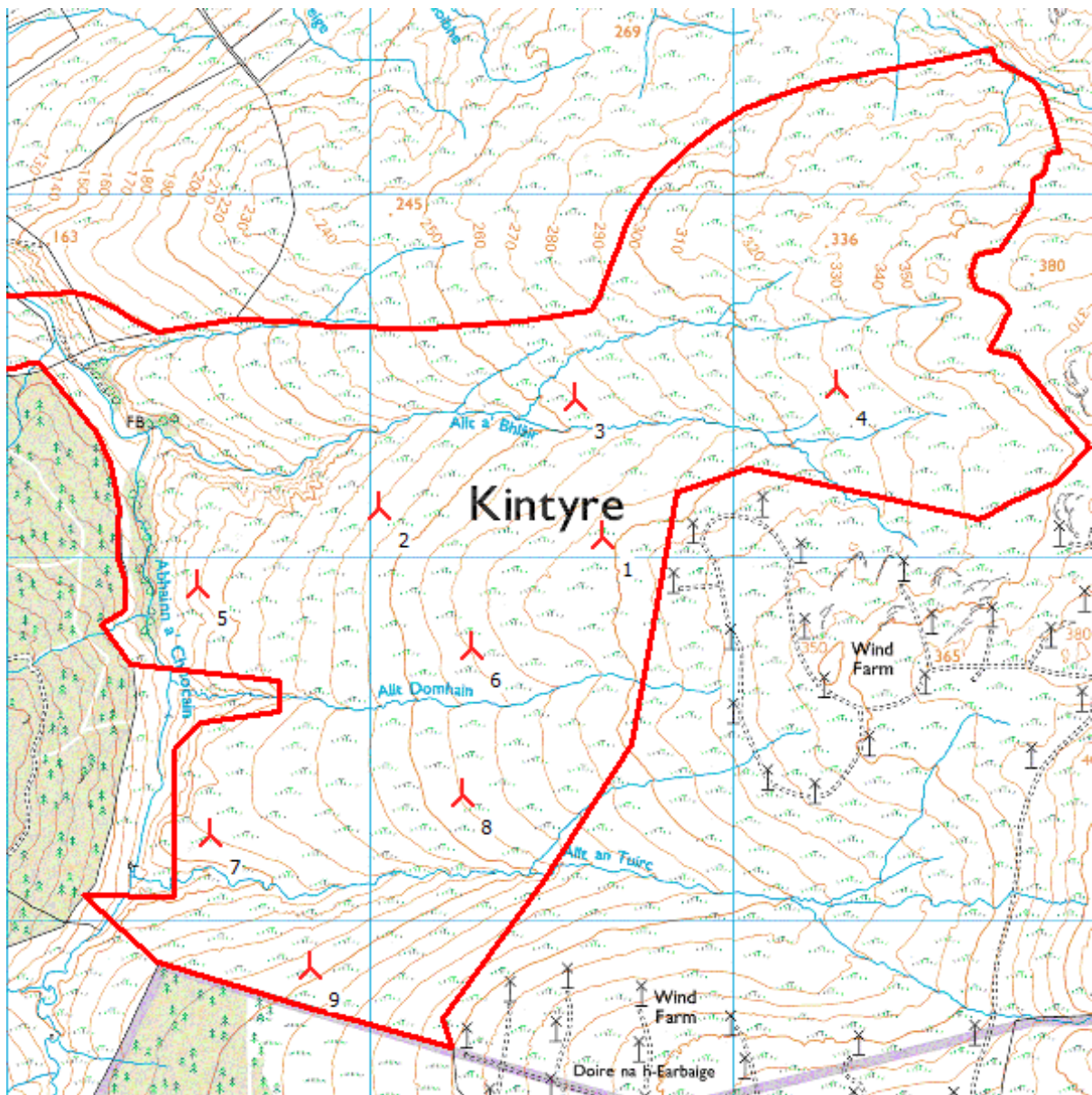


Image 4: Fourth Design Iteration

- 4.30 Illustrated in Image 4 the fourth design iteration was further reduced to 9 turbines with a turbine removed from the southern end of the site due to buildability concerns, and retaining appropriate setbacks from Blary Hill turbines.
- 4.31 The design retained a mixed tip height layout with turbines 1, 2, 3 & 4 at 200m and turbines 5, 6, 7, 8 & 9 at 230m. The mixed tip heights, and reduced number of turbines combined with the removal of turbines from the northern extent of the site refined the design to further enhance cumulative cohesion.

Fifth Design Iteration – Final 9 Turbine Layout

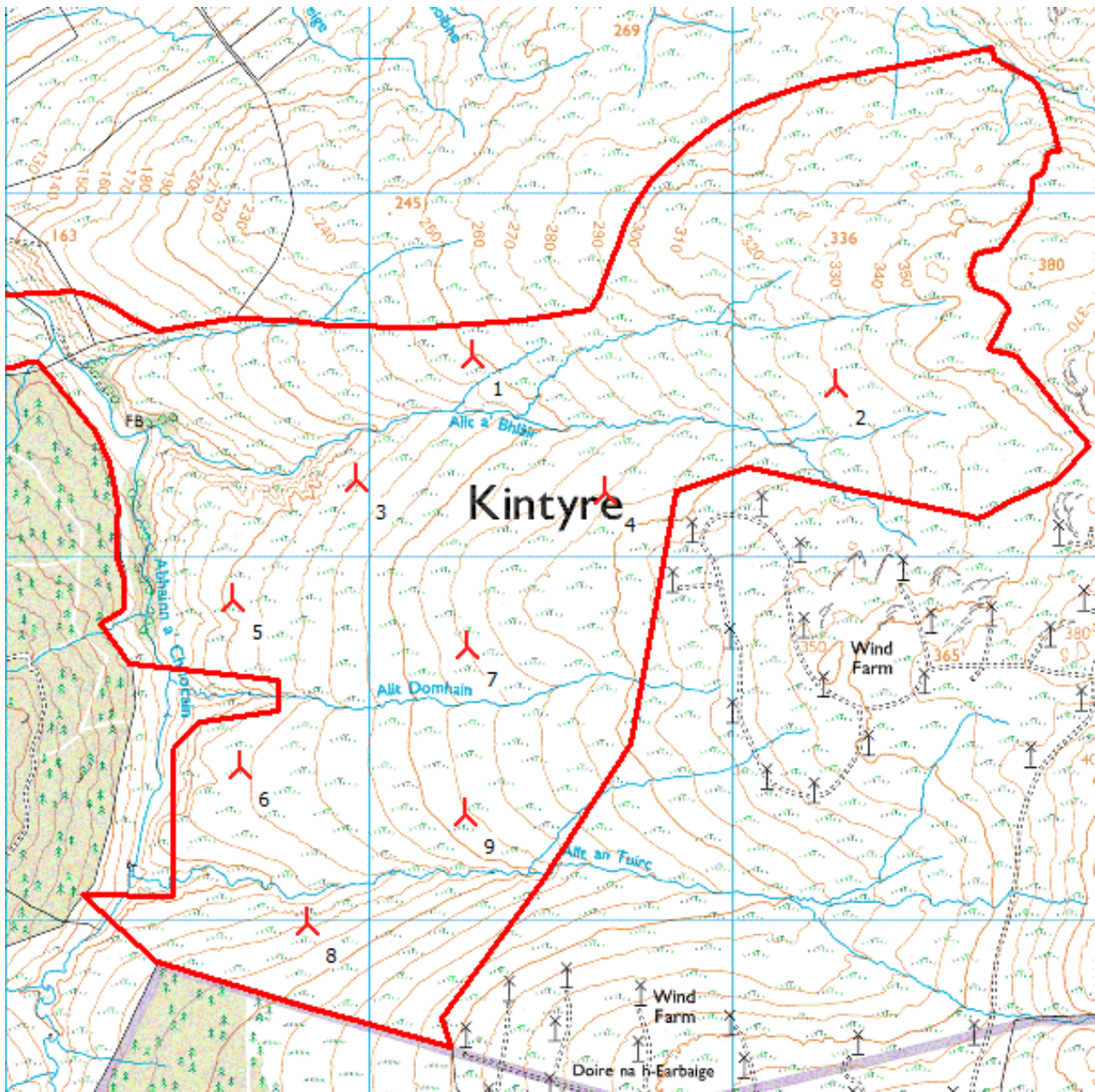


Image 5: Fifth Design Iteration

- 4.32 Image 5 presents the final design iteration of 9 turbines retaining the same mixed tip heights as the 4th design iteration.
- 4.33 The final stage of the design process continued to review the cumulative impact from viewpoints on Arran and within the wider landscape. As such the decision was taken to move turbine 1 and 3 westwards to a lower elevation, further improving cumulative cohesion and landscape fit. This was additionally observed to improve the cumulative picture from local viewpoints in Glenbarr as it further aligned turbine tip heights with turbines at Blary Hill Wind Farm and aimed to limit effects on the North Arran NSA by not displaying hubs from parts of the NSA at coastal level. The extent of the westward

relocation of turbines 1 and 3 was however limited to ensure separation distances between the turbines and properties at Arnicle remained satisfactory.

- 4.34 Turbine spacing was then tested to ensure suitable setback distances were retained with some minor adjustments to turbine positions made. The final design aims to satisfy all previously stated technical, environmental and visual constraints, whilst creating an organised linear layout within which additional infrastructure can be placed and on-site connecting tracks minimised. Infrastructure design is detailed further within the EIA Report.
- 4.35 This 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.
- 4.36 The design was tested against all environmental constraints again, and relevant discussions regarding the design were held with consultees such as SEPA, NatureScot and Historic Environment Scotland, details of which are contained within the respective chapters.

Proposed Access Options - Design Evolution

- 4.37 Construction traffic access and the turbine delivery route has been noted as the key concern of local residents. As such an extensive design process, involving desk-based study and on-site survey works has been undertaken, with targeted consultation of residents. The following section sets out the issues and options considered during the development of the access plan. Ensuring that the transport and construction of the proposed development causes the minimum disruption to the highway network, highway safety and local residents.
- 4.38 The site access point and accompanying internal track layout have been designed to accommodate the range of large vehicles anticipated during the construction and operation of the proposed development.
- 4.39 The preferred access options for turbine components to the site are detailed in full in Chapter 12 of this EIA Report. The delivery route options are considered suitable for commissioning of the site with mitigation measures and required upgrades/construction set out.
- 4.40 Assessment has established that the most suitable delivery route for general construction HGV traffic is from the north via the A83(T) to Glenbarr. From here general construction traffic will access the site via one of two potential access routes as detailed below. The most suitable delivery route for turbine components is to take delivery at Campbeltown Port, where turbine components will be offloaded from barges. Components will then be transported through Campbeltown, exiting the town via the A83 and following the A83 up the peninsula to Glenbarr.

Initial Access Route Assessment

- 4.41 Access was initially considered via the south and through FLS land and the existing SPR entrance to Beinn an Tuirc. This was considered unfeasible at a relatively early stage given topographical, technical, legal and commercial constraints. It was therefore considered that the access to the main wind farm area would require to utilise the A83 up until Glenbarr village and utilise the Barr Glen Road.
- 4.42 Access through the Glenbarr village area was assessed with a range of routing options developed, as shown within Image 6 below. It was evident from an early stage that any proposed access route utilising the Barr Glen Road and existing infrastructure from the Blary Hill construction process would result in disruption to local residents and require several complex legal agreements. As such the access design process has sought throughout to investigate all practical options for bypassing the village and / or Barr Glen Road.

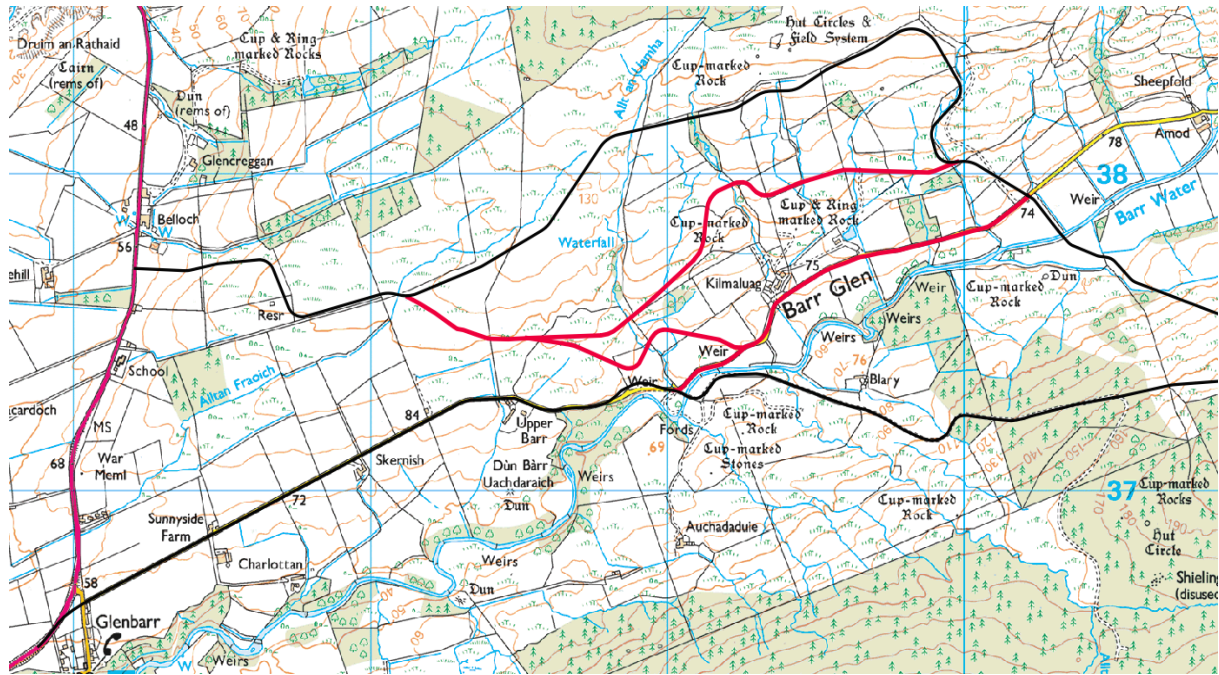


Image 6: Assessed route options around Glenbarr and the Barr Glen Road

- 4.43 Image 6 presents various route options that were assessed throughout the design process and presented at public exhibitions. Routes presented in red have since been discarded, the reasons for this are detailed within the following section of this chapter. The routes presented in black deemed most appropriate and included in the application for the proposed development, these routes are detailed at the end of this section and in full in Chapter 12 of the EIA Report.
- 4.44 Proposed routes were developed and evolved throughout the public consultation process as the past experiences of local wind farm development were understood and the concerns of residents accounted for.
- 4.45 Image 7, below, demonstrates an assessed and since disregarded route option utilising approximately 3.6km of the Barr Glen Road. This route was proposed along with the southern access route, since bought forward to the application, as access options that attempt to maximise existing highway infrastructure (the Barr Glen Road) and minimise new track length. However, the subsequent public consultation process and swept path assessments concluded that this route would impose excessive disruption to local residents and provide difficulty in terms of ground levels past the Blary Hill turnoff. Consequently, the prospect of utilising the full length of the Barr Glen Road all the way to Arnicle Farm was disregarded on topographical, engineering and disruption grounds.

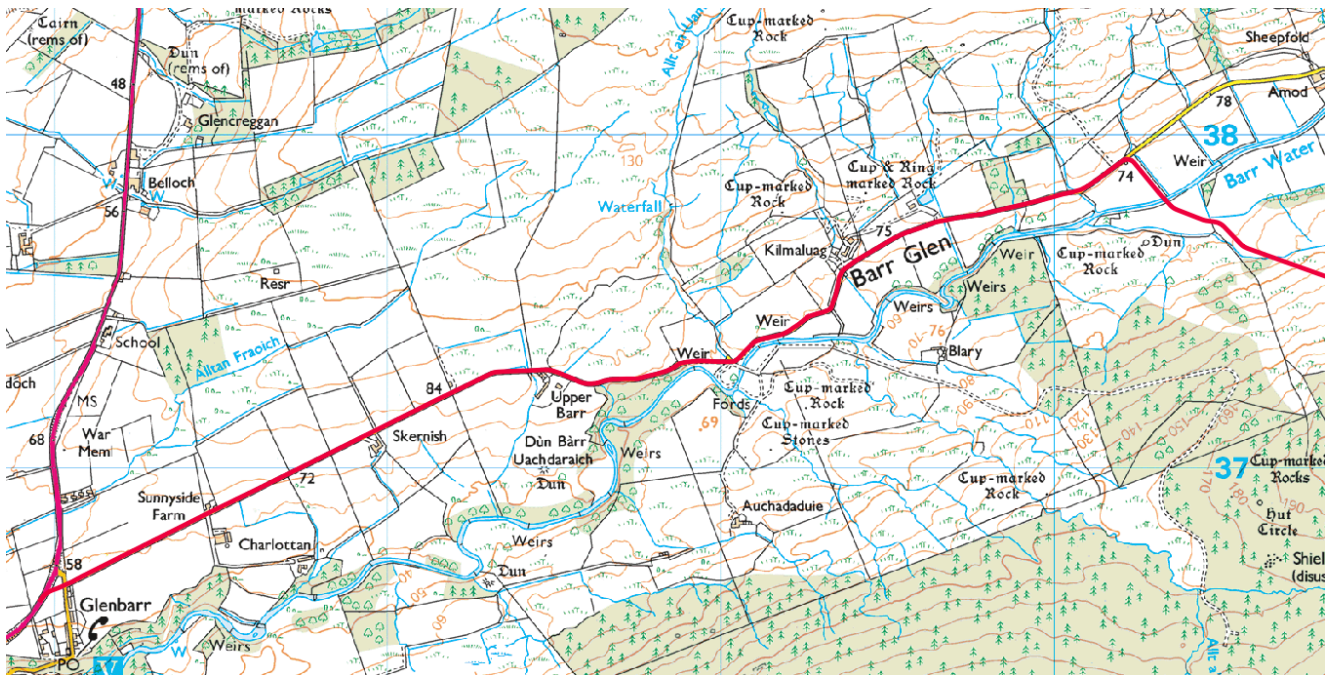


Image 7: Assessed Barr Glen Road Route Option

4.46 To reduce construction traffic along the Barr Glen Road prospective bypass options were developed, as displayed in image 8. Bypass options proposed the construction of new track to route construction traffic on a new junction with the A83, around the village of Glenbarr and rejoining / crossing the Barr Glen Road further up the glen.

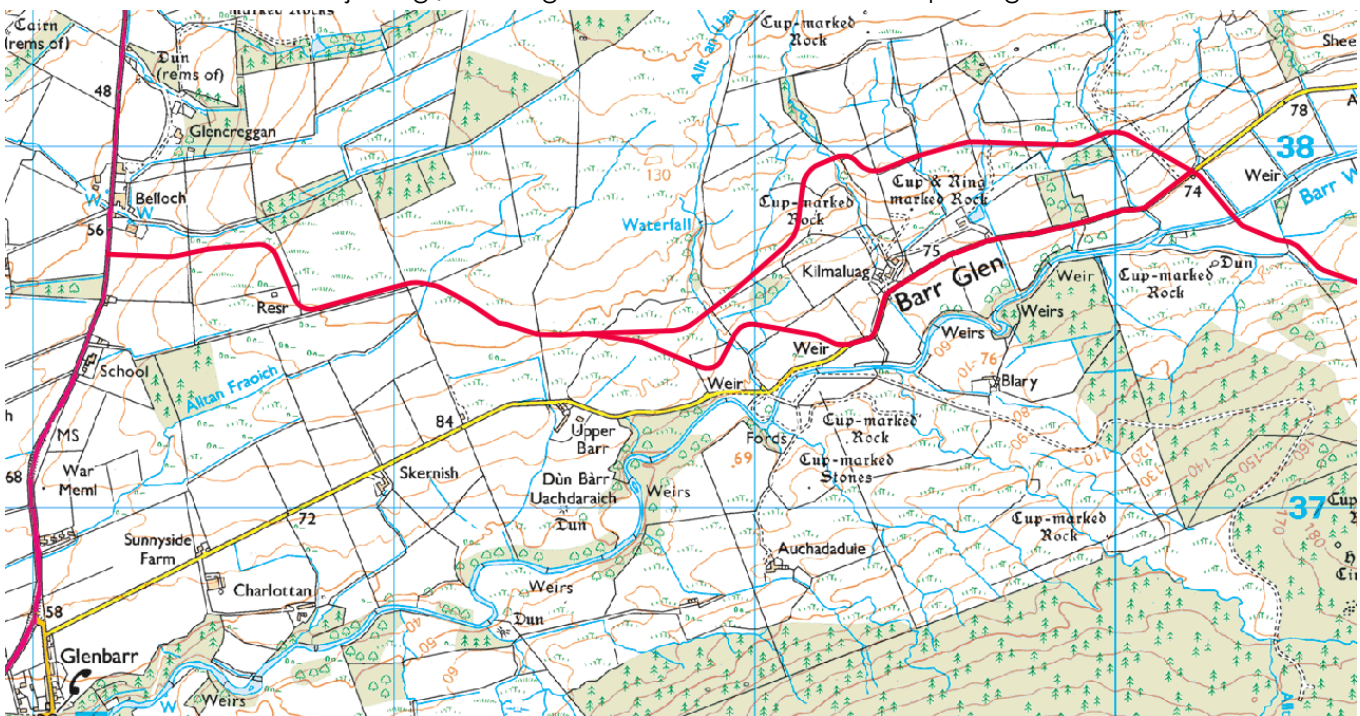


Image 8: Assessed Bypass Route Options

4.47 Bypass route options were presented at the public consultation stage. These options were largely deemed preferable to local residents. As such preliminary survey works were

undertaken to assess the potential environmental implications of bypass track construction and the technical requirements for track alignment. It was concluded that to facilitate a bypass that minimises disruption to local residents a new bridge crossing across the Barr Water would be required, enabling a bypass track to extend beyond the preexisting bridge crossing into Blary Hill wind farm. A bridge feasibility study, and environmental assessment were undertaken for the proposed crossing point and form part of this application.

- 4.48 It was however subsequently concluded that the bypass option could be developed further to increase set back distances between construction traffic and local residents and further reduce potential disruption to residents.

Proposed Access Routes

- 4.49 Image 9 demonstrates the two proposed access options which have been taken forward to application. The two routes prioritise different key considerations and have been refined through the previously discussed extensive access design process. The two route options have been designed to facilitate the delivery of turbine components with swept path assessments undertaken to assess the extent and location of any required upgrades.

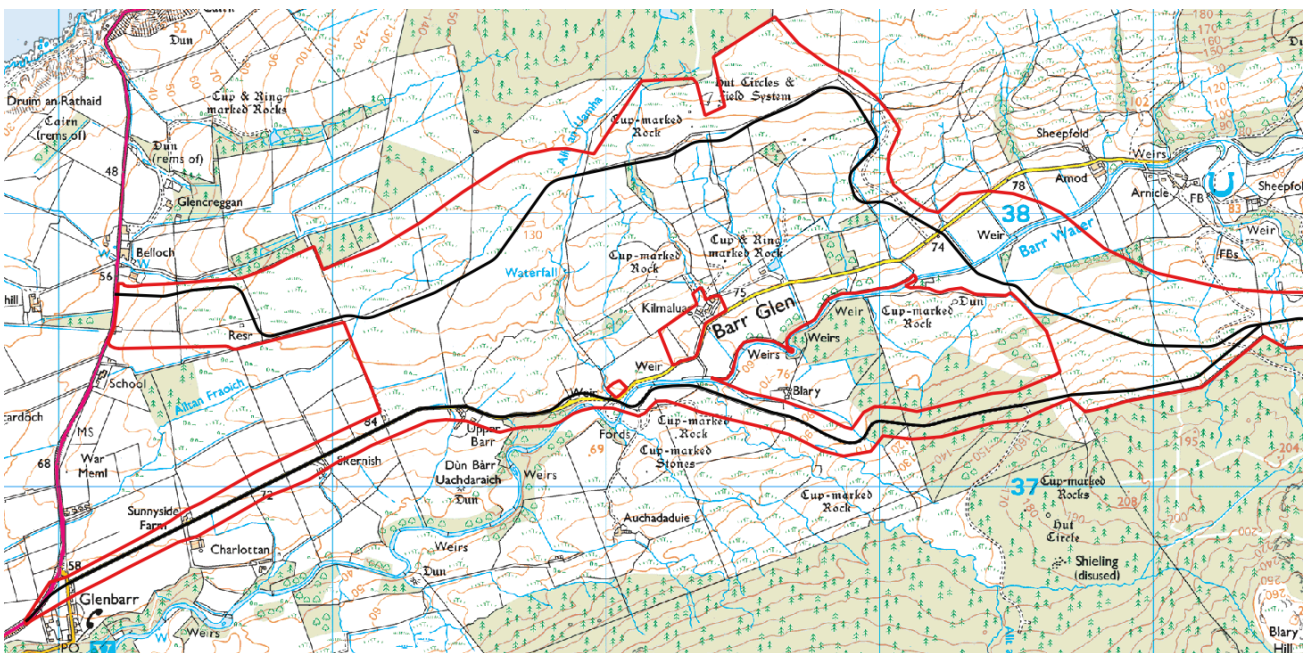


Image 9: Proposed Access Route Options

- 4.50 The Southern route exits the A83 at Glenbarr through the Major's Field following a pre-existing track and follows the Barr Glen Road east before crossing the Barr Water. From here the route utilises existing track, built to service Blary Hill Wind Farm, suitable for abnormal loads. Before entering the main wind farm area of Blary Hill the access route turns off the existing track and follows contour lines around Blary Hill and up the valley to meet with the proposed developments' on-site tracks. Note that the felling to the immediate east of the existing Blary Hill track, to the boundary with the Site has been felled as part of Blary Hill construction works. This route utilises existing track and road as far as possible, however, is likely to cause disruption to the local community of Glenbarr and the

residents of the Barr Glen. This was raised as a significant point of concern during the public exhibition process.

- 4.51 To facilitate access via the southern route upgrade works would be required along the Barr Glen Road, to satisfy mandatory road width requirements for turbine delivery. Upgrades would additionally be utilised to reduce the impact of construction traffic on residents. This would include the construction of additional passing places along the road. The locations and detailed extent of these would be subject to planning condition.
- 4.52 Assessment of this route have however concluded that disruption to residents would be significant, as the single-track Barr Glen Road is the only route available to access properties in the glen. To mitigate this disruption to a practical minimum, Chapter 12 sets out appropriate mitigation measures.
- 4.53 A northern site access route was developed to significantly reduce potential disruption, removing the Barr Glen Road and Glenbarr village from the access route. Multiple options, as previously discussed, were assessed to access the site from this direction, the route illustrated in Image 9 has been refined to satisfy multiple constraints:
- Avoiding Glenbarr village a suitable location was required to construct a new junction with the A83;
 - Aligning the route with technically viable bridge locations;
 - Ecological, ornithological and peat surveys identified areas not suitable for track to be constructed; and
 - Avoidance of excessive gradients to facilitate turbine component delivery.
- 4.54 The northern access route exits the A83 north of Glenbarr, this location was identified to satisfy visibility splay requirements and aimed to achieve a sufficient set back distance from Glenbarr school.
- 4.55 The access route then follows a high line up the Barr Glen, this route satisfies technical constraints, however the primary consideration is to minimise disruption and proximity to Barr Glen residents.
- 4.56 At the point of crossing the Barr Glen Road and subsequent Barr Water the access route is restricted by field boundaries; to minimise impact upon better agricultural land the route is aligned with boundaries. The proposed route then climbs Blary Hill to ensure minimal impact upon agricultural land. Here the proposed northern and southern routes converge and continue around Blary Hill to meet on-site tracks.
- 4.57 The Barr Glen hosts several cultural heritage assets that the northern access route would interact with, cup marked rocks, and a dun located close to where the route crosses the Barr Water. It is considered that although the access route does pass within a close proximity to the setting of such historical assets the primary impact will be during the construction phase. As this is a temporary period any potential impact upon the setting of cultural assets will be temporary and therefore limited. These interactions have been assessed further, and in detail, in the Chapter 10 of the EIA Report. Similarly, impacts upon ornithology, ecology and peat are also discussed in the relevant chapters of the EIA Report.

Summary of Design Evolution

- 4.58 The wind farm layout and access route options in the proposed form takes account of stakeholder feedback received during pre-application discussions, and environmental and technical constraints. In designing a layout which is simple in composition and restrained in size, the final design results in a development which considers the constraints associated with the site.
- 4.59 The site location has enabled a design to be produced that is cohesive with the surrounding built environment and fits into an area between two operational wind farms without significantly increasing the visibility of turbines in the local landscape.
- 4.60 The proposed development has been designed to consider the existing developed landscape from key local viewpoints and nearby landscape designations. The development in its proposed format has been found to be respectful from local viewpoints including the Arncliffe cluster and the Glenbarr War Memorial, sitting within a preexisting cluster of development, minimising perceived lateral spread from these viewpoints and appearing visually cohesive. From the key local landscape designation, the North Arran NSA, the design has minimised impact, shielding all turbine hubs from coastal regions.
- 4.61 As discussed, the Applicant requests that consent is granted for both access options, with a suspensive condition to limit to final choice to one access. The required assessments within the EIA Report set out the environmental effects of each option as appropriate.

Allt Domhain Wind Farm

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

June 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 EIA Report this 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 provided.
- 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 Whilst the Development Plan is the starting point for the decision-making process, it must also be considered in the context of the ever-evolving policy hierarchy 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; and
 - Argyll and Bute Local Development Plan 2024 (LDP2) (and its Supplementary Guidance).
 - Other Material Considerations
 - Scottish and UK Renewable energy and climate change legislation and policy; and
 - Argyll and Bute Wind Landscape Capacity Study (LWECS)

Planning Policy

The Development Plan

National Planning Framework 4

- 5.6 Formally adopted in February 2023, NPF4 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 NPF 4 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 is 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 that 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”.

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 Part (c) of Policy 11 states that development proposals will only be supported where they maximise net economic benefit, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities.
- 5.34 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.*

- 5.35 Throughout the EIA Report, each topic listed within Policy 11 (e) has been fully assessed
- 5.36 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”.
- 5.37 A key point of policy is that Policy 11 e) 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.

Argyll and Bute Local Development Plan 2 2024

- 5.38 The Argyll and Bute LDP2 was adopted in February 2024 and sets out the Council's visions and objectives in order to deliver sustainable and inclusive development whilst meeting wider Scottish Government aims. The LDP2 replaces and supersedes the previous LDP 2015 and its associated Supplementary Guidance.

Overarching Renewable Policy

- 5.39 The key policy related to renewable energy is Policy 30 – The Sustainable Growth of Renewables which states that “The Council will support renewable energy developments where these are with the principles of sustainable development principles and it can be demonstrated that there would be no unacceptable environmental effects, whether individual or cumulative, on local communities, natural and historic environments, landscape character and visual amenity, and that the proposals would be compatible with adjacent land uses”.
- 5.40 Policy 30 goes on to state a wide range of policy topics upon which proposed renewable energy development must be assessed, including:
- *Impacts on communities and individual dwellings, including visual impact, residential amenity, noise and shadow flicker.*
 - *Landscape and visual impacts.*
 - *Effects on the natural heritage, including birds.*
 - *Impacts on carbon rich soils, using the carbon calculator.*
 - *Public access, including impact on long distance walking and cycling routes and those scenic routes identified in the NPF.*
 - *Impacts on the historic environment, including scheduled monuments, listed buildings and their settings.*
 - *Impacts on tourism and recreation.*
 - *Impacts on aviation and defence interests and seismological recording.*
 - *Impacts on telecommunications and broadcasting installations, particularly ensuring that transmission links are not compromised. –*

- *Impacts on road traffic.*
- *Impacts on adjacent trunk roads.*
- *Effects on hydrology, the water environment and flood risk.*
- *Cumulative impacts arising from all of the considerations above.*
- *Net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities.*
- *The scale of contribution to renewable energy generation targets.*
- *Effect on greenhouse gas emissions. – Impacts on trees, woods and forests."*

5.41 Policy 04 – Sustainable Development also sets out pertinent overarching policy considerations. Amongst its requirements, the policy states that “*developers should seek to demonstrate sustainable development principles*”, such as maximising opportunity for local community benefit, and conserving and enhancing the natural and built environment and avoid significant adverse impacts on biodiversity, natural and heritage assets. The policy also requires that proposals respect the landscape character of an area and the setting and character of settlements, and avoid having significant impacts upon land, air and water environments.

Landscape and Visual

5.42 Policy 05 – Design and Placemaking requires that proposed developments should endeavour to comply with placemaking criteria, including relevant to the proposal, the requirement to be compatible with surrounding land uses, being where practicable, resource efficient by utilising existing infrastructure and respecting site topography and surrounding landmarks or views.

5.43 Policy 08 – Sustainable Siting provides criteria which should apply when assessing any proposal for development. Particularly relevant to the site is that:

- *The development should integrate into the landscape or existing built form to minimise detrimental effects on the environment. Particularly careful attention should be given to hilltop, skyline or ridge locations, where development will only be acceptable if such a location cannot be avoided and any significant adverse landscape and visual effects are clearly outweighed by social, environmental or economic benefits of community wide importance arising from the development proposal, and have been sufficiently mitigated through an environmental impact assessment or landscape and visual impact assessment.*
- *Development on a sloping site should be designed sensitively taking account of the topography in order to prevent significant excavation or under-building and'*
- *The siting of a development should take into account the character of the area in terms of its settlement pattern, layout and density.*

5.44 Policy 10 – Design: All Development provides design guidance for all types of developments, and relevant to the proposed development, includes prescriptions that the proposal must “*demonstrate an understanding of an appropriate response to the proposed development site and wider context, including consideration of character*”.

- 5.45 Policy 70 – Development Impact on National Scenic Areas states that “Argyll and Bute Council will resist any development, in or affecting, National Scenic Areas that would compromise the objectives of their designation and the overall integrity, or that would fail to safeguard Special Qualities unless it is adequately demonstrated that
- *Any significant adverse effects on the landscape quality for which the area has been designated are clearly outweighed by social, environmental or economic benefits of national importance*
 - *The proposal is supported by an LVIA and has taken into account the content of any relevant Argyll and Bute Landscape Capacity Assessment.”*
- 5.46 Policy 71 – Development Impact on Local Landscape Areas states that “Argyll and Bute Council will resist development in, or affecting a Local Landscape Area where its scale, location or design will have a significant adverse impact on the character of the landscape. All development proposals in or affecting a Local Landscape Area must demonstrate that
- *a) Any significant adverse effects on the landscape quality for which the area has been designated are clearly outweighed by social, economic or environmental benefits of community wide importance*
 - *b) The proposal is supported by a landscape and visual impact assessment and has taken account of the content of any relevant Argyll and Bute Landscape Capacity Assessment; and*
 - *c) The location, scale, design, materials and landscaping would be of a high standard and would safeguard or enhance the special qualities and character of the Local Landscape Area.”*
- 5.47 Policy 72 – Development Impact on Areas of Wild Land is not applicable as it only relates to proposed developments within Wild Land.

Hydrology, Geology and Peat

- 5.48 Policy 55 – Flooding states that development on the functional flood plain is considered contrary to the objectives of the LDP, subject to detailed criteria held within the policy.
- 5.49 Policy 59 – Water Quality and the Environment states the criteria upon which proposals for development will be assessed with regard to the potential impact upon the water environment. The Council will actively seek to protect natural watercourse features by preventing or avoiding development on sites where there would be an unavoidably detrimental impact upon a watercourse.
- 5.50 Policy 79 – Protection of Soil and Peat Resources contains policy provision for the Council to support developments only where appropriate measures are taken to maintain soil resources proportionate to the scale of the development. Development which would have a significant adverse effect on soil resources and functions or peat structure in terms of disturbance, degradation or erosion will not be supported unless it is satisfactorily demonstrated that a) such adverse effects are clearly outweighed by social, environmental and economic benefits of community wide importance and a soil or peatland management plan.

Ecology and Ornithology

- 5.51 Policy 73 – Development Impact on Habitats, Species and Biodiversity provides guidance on the Council's requirements to adhere to relevant legislation. Part b) states that when considering development proposals, the Council will seek to contribute to the delivery of the objectives and targets set by the Local Biodiversity Action Plan (LBAP) and Scottish Biodiversity Strategy. Part d) states that where there is evidence that a habitat or species of international, national or local importance exists on a development site, the Applicant will be required to submit a specialist survey of the site's natural environment and if necessary, a mitigation plan. The policy also contains criteria upon which impacts on protected species will be assessed.
- 5.52 Policy 74 – Development Impact on Sites of International Importance contains policy relating to the requirement for Appropriate Assessment and the treatment of significant effects thereafter.

Cultural Heritage

- 5.53 Policy 15 – Supporting the Protection, Conservation and Enhancement of Our Historic Built Environment states that development proposals will not be acceptable where they fail to *"protect, preserve, conserve or enhance the special characteristics and/or cultural significance of the historic built environment in terms of its location, scale, form, design or proposed use, whilst also avoiding "any cumulative effect"*. Proposals for development which would affect an asset or its setting will be *"expected to demonstrate that they would enable positive change by balancing the need to secure the long-term sustainability of the asset against the need to address the impacts of climate change"*.
- 5.54 Policy 19 – Scheduled Monuments states that there will a presumption against development that does not retain, protect, conserve or enhance a Scheduled Monument and the integrity of its setting. Developments which have an adverse impact upon Scheduled Monuments or their setting will not be permitted unless there are exceptional circumstances. The developer is expected to satisfactorily demonstrate that the effect of a proposed development on a scheduled monument and its wider setting has been assessed and that measures will be taken to protect, conserve and where appropriate enhance the special interest of the asset.
- 5.55 Policy 21 – Sites of Archaeological Importance provides advice on archaeological heritage and future discoveries found in Argyll and Bute. Key to the policy is the advice when the proposed development would affect a site of archaeological significance, in such that the applicant should consult the planning authority and West of Scotland Archaeology Service and relevant policies and guidance must be conformed to.

Transport and Access

- 5.56 Policy 39 – Construction Standards for Private Access requires that construction standards for private accesses incorporate minimum standards to function safely and effectively as set out in the Council's Road Development Guide, and that accesses which connect to or impact significantly on a Trunk Road will require consultation with Transport Scotland.

- 5.57 Policy 41 – Off Site Highway Improvements requires that in the judgement of the planning authority, where development proposals will significantly increase vehicular traffic on substandard private or public roads, then developments will be required to contribute proportionately to improvements.

Other Issues

- 5.58 Policy 43 – Safeguarding of Aerodromes states the development will not be permitted where it would compromise the safe operation of an aerodrome or constrain their present or future operations.

Other Material Considerations

- 5.59 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

- 5.60 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).
- 5.61 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

- 5.62 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.
- 5.63 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.
- 5.64 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.

- 5.65 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))

- 5.66 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.*"
- 5.67 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.
- 5.68 The report makes clear that at a UK level "current policy is insufficient for even the existing targets."
- 5.69 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.
- 5.70 The CCC Annual Report to Parliament (2020) offered an update on the progress towards Net Zero following adoption of the Net Zero Target.
- 5.71 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.*"
- 5.72 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.
- 5.73 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.*"
- 5.74 Page 22 of the report sets out that a national fourfold increase in renewable energy capacity is needed.

- 5.75 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.
- 5.76 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.
- 5.77 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*”.
- 5.78 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

- 5.79 A climate emergency was declared in Scotland in 2019 by the Scottish Government, with Argyll and Bute Council also declaring a climate emergency in late 2021.
- 5.80 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.
- 5.81 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 Target) (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);
 - Onshore Wind Sector Deal (2023); and
 - Climate Change Committee Scotland's Carbon Budget (2025).

Scottish Energy Strategy (2017)

- 5.82 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)

- 5.83 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

- 5.84 The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 bill, introduced to Parliament on 23rd May 2018, was subsequently passed in September 2019.
- 5.85 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.
- 5.86 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.'

- 5.87 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)

- 5.88 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.
- 5.89 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);

- 5.90 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”.
- 5.91 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”.
- 5.92 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)

- 5.93 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".*
- 5.94 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.
- 5.95 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."

- 5.96 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)

- 5.97 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.
- 5.98 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)

- 5.99 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.

Climate Change Committee – Scotland's Carbon Budget

- 5.100 Scotland's Climate Change Committee has advised on four five-year carbon budgets for the periods 2026-2030, 2031-2035, 2036-2040, and 2041-2045, with the aim of reaching net-zero emissions by 2045. These budgets, which are set as percentage reductions from 1990 levels, recommend average emissions reductions of 57%, 69%, 80%, and 94% respectively. The Scottish Government is required to set draft regulations for these carbon budgets by 19th August 2025.

Argyll and Bute Landscape Wind Capacity Study

- 5.101 The LWECS was adopted in 2017 and whilst it is not part of the Development Plan, it forms a material consideration in the determination of onshore wind energy developments. It aims to guide decision makers in which areas of Argyll and Bute have landscape capacity for wind turbines. As has been recognised in several recent decisions, the LWECS does not contain up to date turbine technology but its characterisation of the Argyll landscape is useful.
- 5.102 The proposed development is situated within Landscape Character Type 6: Upland Forest Moor Mosaic. Full analysis of the proposed development against the LWECS is provided within the Planning Statement and Chapter 6: Landscape and Visual.

Summary

- 5.103 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.
- 5.104 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.

Allt Domhain Wind Farm

Environmental Impact Assessment Report

Volume I

Chapter 6: Landscape & Visual Impact Assessment

June 2025

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6 LANDSCAPE AND VISUAL IMPACT ASSESSMENT

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 Chapter 3 of this EIA Report. All additional material relating to this chapter can be found in Volumes 2, 3 and 4 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 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, including National Scenic Areas (NSA), Local Landscape Areas (LLA) and Special Landscape Areas (SLA); and
 - Views and visual amenity experienced by residents, tourists, visitors, recreational and transport / ferry users.
- 6.4 The proposed development is located on the central upland 'spine' of the Kintyre peninsula between the existing Blary Hill and Beinn an Tuirc I wind farms, approximately 5.3km east of the A83 and 6.15km east of the settlement of Glenbarr. The Site is located within the *Upland Forest Moor Mosaic* landscape character type (LCT) as classified in the Argyll and Bute Landscape Wind Energy Capacity Study, August 2017 (ABLWECS).
- 6.5 In summary, the proposed development comprises up to nine wind turbines with four turbines (T1, T2, T3, and T4) up to a maximum blade tip height of 200m and the remaining five turbines (T5, T6, T7, T8 and T9) up to a maximum blade tip height of 230m, and associated infrastructure including visible aviation warning lighting on T1, T2, T5 and T8. Infrastructure associated with the proposed development includes optionality over the method of site entrance, with creation of a new northern route from the A83 with associated new junction, and a southern option using the existing Barr Glen road access, internal access tracks and hardstanding areas, crane pads, temporary construction 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 the reversal of most of the landscape and visual effects. Although the operation period of 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 within Volume 3: Technical Appendices, comprising:
- Appendix 6.1: LVIA Methodology and Glossary;
 - Appendix 6.2: Viewpoint Analysis;
 - Appendix 6.3: Residential Visual Amenity Assessment (RVAA)
 - Appendix 6.4: Night-time Assessment; and
 - Appendix 6.5: Additional Wirelines scoped out through consultation.
- 6.8 Figures illustrating this chapter are contained within Volume 2 and include plans and visualisations of the proposed development the latter of which are presented in accordance with the NatureScot guidance¹. Further figures illustrating plans and visualisations in support of the RVAA, Night-time Assessment and Appendix 6.5: Additional Wirelines are also contained in Volume 2.
- 6.9 Other key relevant chapters include Chapter 3: Project Description, Chapter 4: Design Evolution, Chapter 5: Renewable Energy and Planning Policy, Chapter 10: Cultural Heritage, Chapter 13: Socio-Economics and Tourism and Chapter 14: Other Issues.

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

Landscape Planning Policy and Guidance

- 6.12 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 NPF 4 (Scottish Government, 2023) and the Argyll and Bute Local Development Plan 2 (ABC LDP, 2024) in relation to renewable energy development. Further information on strategic landscape planning guidance from NatureScot (NS) / Scottish Natural Heritage (SNH) and Argyll and Bute Council (ABC) is provided here.

National Planning Framework 4

- 6.13 NPF 4 was adopted by the Scottish Ministers on 13th February 2023, following approval by the Scottish Parliament in January 2023. This replaces NPF 3 and Scottish Planning Policy (SPP). NPF 4 now forms part of the statutory development plan for any area in Scotland.
- 6.14 NPF 4 Annex B sets out statements of need for national development and provides that onshore electricity generation from renewables exceeding 50 megawatts 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 NPF 4 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 NPF 4 include:
- Policy 1 Tackling the Climate and Nature crisis;
 - Policy 2 Climate mitigation and adaptation;
 - Policy 4 Natural places;
 - Policy 6 Forestry, woodland and trees;
 - Policy 11 Energy;
 - Policy 14 Design, quality and place;
 - Policy 18 Infrastructure first; and
 - Policy 29 Rural development.
- 6.17 The ABC LDP2 (2024) and associated statutory Supplementary Guidance (SG) form part of the statutory development plan. The LDP contains the relevant local planning policies that any development would be assessed against. The relevant key policies for landscape are:

- Policy 02 – Outwith Settlement Areas;
- Policy 04 – Sustainable Development;
- Policy 05 – Design and Placemaking;
- Policy 08 – Sustainable Siting;
- Policy 10 – Design: All Development;
- Policy 20 – Gardens and Designed Landscapes;
- Policy 30 – The Sustainable Growth of Renewables;
- Policy 70 – Development Impact on National Scenic Areas (NSAs);
- Policy 71 – Development Impact on Local Landscape Areas (LLA);
- Policy 72 – Development Impact on Areas of Wild Land;
- Policy 77 – Forestry, Woodland and Trees; and
- Policy 78 – Woodland Removal.

Argyll and Bute Landscape Wind Energy Capacity Study

- 6.18 The ABC LDP states that as the ABLWECS is a "... *technical study it does not form part of the spatial framework for wind farms, it does however provide information on the sensitivity of the various landscape character areas in Argyll and Bute to accommodate ... different typologies of wind turbines* " (p.89). Importantly, the ABLWECS notes in the executive summary that it is a strategic assessment and the judgements on sensitivity represent a 'rounding up' or averaging across broad character types and areas, where considerable variation can otherwise occur. In contrast, this assessment is specific to the proposed development and its location.
- 6.19 NS have revised their advice on landscape sensitivity studies for wind farm developments, moving away from 'capacity studies' that attempt to define how much generic development can be located within a particular landscape and favouring sensitivity studies (*Landscape Sensitivity Assessment Guidance*, April 2022).
- 6.20 Therefore, in reading the ABLWECS a number of caveats should be noted as follows:
- The ABLWECS is not an up-to-date document. The consented Tangy IV Repowering (16 turbines up to 149.9m to blade tip), and other consented wind farms on Kintyre at Airigh (14 turbines up to 149.5m to blade tip), Clachaig Glen (12 turbines: seven with a maximum blade tip height of 185 metres and five with a maximum blade tip height of 200 metres), Eascairt (13 turbines up to 100m to blade tip), High Constellation (10 turbines up to 149.5m to blade tip) and are not included in the baseline. In addition, several wind farms noted as consented in the ABLWECS including Auchadaduie, A'Chruach Extension, Blary Hill and Beinn an Tuirc III are now existing wind farms;
 - The ABLWECS should not replace the need for individual landscape and visual impact assessments and/or Environmental Impact Assessments for individual wind energy developments, which provide detailed and specific assessment of the likely landscape, visual and cumulative effects; and

- The ABLWECS is a broad assessment, and the judgements on sensitivity represent a 'rounding up' or upper level of sensitivity applied across whole LCTs, within which considerable variation can occur.
- 6.21 The landscape and visual sensitivity criteria in the ABLWECS are applied to each LCT to produce a sensitivity rating which is applied to a range of five wind turbine types based on height alone. The proposed development would be considered as a 'Very Large' turbine type (>130m to blade tip) which is assessed in the ABLWECS Volume 2.
- 6.22 The proposed development (all nine turbines) would be located within the *Upland Forest Moor Mosaic* (6) LCT, as identified in the ABLWECS. A High sensitivity to Very Large turbines (>130m) is ascribed to the *Upland Forest Moor Mosaic* LCT within the ABLWECS Volume 2 which goes on to state that "Turbines >150m (and particularly towards 200m high) would [...] dominate the scale of the smaller hills and narrow glens on the fringes of this landscape – whether directly sited in these areas or close-by on immediate skylines overlooking the glens for example" (ABLWECS Volume 2, p.53). It also notes that Very Large turbines could be "considerably more prominent and incur cumulative effects on views from settlement, footpaths, and roads in open views from Arran, Gigha, outer Loch Fyne, Kilbrannan Sound and the West Loch Tarbert area. [...] Contrasts of scale between turbines could occur if very large turbines were sited close-by operational and consented wind farm developments" (p.55-56).
- 6.23 Particular areas of sensitivity identified within the *Upland Forest Moor Mosaic* (6) LCT as described in the ABLWECS include:
- Potential cumulative effects on views from both sides of Kintyre and from Arran and Gigha, particularly in combination with operational and consented wind farms;
 - Potential cumulative and sequential effects on the A83 Tourist Route, B842, B8001 and Lochranza-Claonaig ferry route;
 - Potential effects on the sensitive skylines within Barr Glen, Glen Lussa, and the *Hidden Glens* LCT (3); and
 - Cumulative effects with other wind farms located on the nearby *Mull of Kintyre Upland Forest Moor Mosaic* LCT (6c), potentially affecting views from the west coast of Arran.
- 6.24 These sensitivities are considered further in this assessment.

Consultation

- 6.25 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 ABC and NS who commented on the scope of assessment, effects on designated landscape and Wild Land Areas, and cumulative development. Post-scoping consultation was undertaken via a Technical Note issued to ABC and NS on 21 August 2024 to further agree the LVIA viewpoints and several aspects of the assessment, which was agreed through subsequent email correspondence. 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 – 12 th April 2021	The location and especially the scale of the proposal could raise issues of national interest.	NS concerns are noted. Since the Scoping Opinion, three turbines have been removed. Further information on design and siting is provided in Design Considerations section in this chapter. Additional information is also provided in Chapter 4: Design Evolution.
	Impacts on the special landscape qualities of the North Arran National Scenic Area are a key concern and should be carefully considered using our draft guidance	Noted; the assessment of effects on the SLQs of the North Arran NSA is included in the assessment in line with current NS guidance (January 2025).
	A wild land assessment should be provided for North Arran Wild Land Area.	Effects on the North Arran WLA have been scoped out and agreed with NS during post-scoping consultation on 25th September 2024.
	Cumulative effects – including the potential concentrated band of turbines in southern Kintyre – in views from Arran, and associated coastal waters will require very careful consideration,	Noted. Cumulative effects with other existing, consented, and application wind farms within 45km are included in the assessment.
	On the whole, we consider the proposed list of viewpoints to be suitably representative and comprehensive. We recommend the addition of a viewpoint in the vicinity of Machrihanish beach to facilitate assessment of visual impacts from this popular recreational location. This is in addition to the nearby, but more elevated, VP12. [...] We request that water-based viewpoints are included as assessment viewpoints as they are important receptors in this landscape where boats / water based recreation is an important part of the tourist / visitor experience.	Noted. Machrihanish Beach viewpoint is included, as well as viewpoints from the Lochranza – Claonaig ferry, the Kennacraig – Port Ellen ferry, and the Gigha ferry terminal.

Date Received	Consultation Response(s)	How and where is this addressed?
25 September 2024	We are content with the proposed LVIA viewpoints as listed in Table 1 of your LVIA consultation document (August 2024). The baseline photographs should demonstrate the worst-case scenario from each viewpoint.	Noted.
	We are pleased to note that the LVIA will consider both day and night-time effects on the North Arran NSA / SLA and are content for all other landscape designations (including the North Arran and Jura, Scarba, Lunga and Garvellachs Wild Land Areas) to be scoped out of the assessment. It is worth noting that the North Arran SLA falls within the remit of North Ayrshire Council as opposed to Argyll and Bute Council.	Noted.
	We note the omission of Killean Wind Farm which is at application stage as well as High Dalrioch (scoping stage). It's also worth noting that I was recently notified by ESB that they plan to submit the EIA for West Torrisdale Wind Farm imminently – I'm not sure why the ECU portal is currently showing that this site has been withdrawn and so I'm awaiting a call back from ECU to confirm the status of this site and I'll let you know ASAP. Given the close proximity of West Torrisdale to the Allt Domhain and Beinn an Tuirc wind farms, we consider that there is potential for landscape and visual interactions, particularly in views from the North Arran NSA. As such, and in line with our 2021 cumulative guidance, we recommend that West Torrisdale (if confirmed as still live) is taken into account in the cumulative assessment for Allt Domhain.	Noted. Killean and West Torrisdale have been included in the assessment.

Date Received	Consultation Response(s)	How and where is this addressed?
	We note that night-time viewpoints will be provided from three locations; VP2: Arnicle, VP3: Glenbarr and VP8: Imachar and that you do not intend to provide night-time viewpoints from hill summits “<i>due to health and safety considerations as noted in the Scottish Government’s draft guidance on Aviation Lighting Impact Assessment (June 2024).</i>” [...] You may be aware that night-time photography has already been undertaken to inform the LVIAs for both the Narachan and Earraghail wind farms from the Mullach Buidhe summit on Arran. This was a key VP in helping us to appraise the potential impacts on the Special Landscape Qualities of the North Arran NSA. As such and given the potential for significant nighttime effects on the NSA, we do request that an elevated night-time viewpoint from within the NSA is included – please do get in touch with us if you’d like to propose a proxy elevated viewpoint. We also wish to note that you will also need to consider cumulative night-time impacts as part of the LVIA.	Noted. A night-time viewpoint from the summit of Mullach Buidhe (Beinn Bharrain) is included in the assessment.
	We have recently updated our advice on turbine lighting in Annex 1 of our Pre-Application Guidance for Onshore Wind Farms: https://www.nature.scot/doc/naturescot-pre-application-guidance-onshore-wind-farms – please note that if dimming mitigation is proposed, 2000cd lights should still be portrayed in photomontages to illustrate the infrequent worst case scenario and that additional photomontages illustrating 200cd lights should also be provided to demonstrate the more typical scenario.	Noted. The Night-time assessment has been undertaken in accordance with the most recent NS guidance (November 2024). A Lighting Strategy has been approved by the CAA and the assessment focusses on effects based on the 200cd Scenario in line with the new guidance.
Argyll and Bute Council (ABC)		

Date Received	Consultation Response(s)	How and where is this addressed?
Scoping Opinion	It is noted from the Scoping Report that the proposal is located close to a number of locally and nationally designated and important landscapes which reflect the sensitivity and special qualities of the area.	Noted. The North Arran NSA / SLA have been included in the assessment. All others have been scoped out and agreed with ABC in the post-scoping consultation (12 th September 2024).
	Argyll & Bute Landscape Wind Energy Capacity Study 2017 – The Capacity Study is a material consideration in the determination of wind farm proposals and it is recommended that it is considered fully in the LVIA process, taking into account adjacent Landscape Character Types (LCTs) impacted by the proposal as well as the receiving LCT. The proposal is located within LCT 6 – Upland Forest Moor Mosaic. The study states that there is very limited scope for the Very Large Typology (turbines >130m to be accommodated. The narrow extent of this peninsula and its relatively low relief inhibits opportunities for turbines >150m high. Very large turbines in many locations would be likely to significantly intrude on views from both Gigha and Arran, considerably extending effects and potentially affecting the 'space and cluster' spatial pattern of existing wind farm development evident in the northern part of the peninsula in views from Arran.	Noted. The ABLDP 2 (2024) replaces the Supplementary Guidance of the previous LDP (2015), however in the absence of an updated ABLWECS the previous version (2017) is used in this assessment.

Date Received	Consultation Response(s)	How and where is this addressed?
	Viewpoints – the Council notes the representative assessment viewpoints detailed in Table 6.1 and associated wirelines, and recommends that the following additional viewpoints are considered/provided from: • Machrihanish beach area • Ferry Route Assessment for routes between Islay and Kennacraig; Tayinloan and • Gigha, and Claonaig to Lochranza • A83 north of Clachan • Jura NSA and WLA • Islay Areas of Panoramic Quality • Viewpoints representative of boats/water based recreation The Council would be pleased to comment further on viewpoint selection.	Noted. All suggested viewpoints have been included in the assessment with the exception of Jura and Islay viewpoints. These have, however, been included in Appendix 6.5 as wirelines. These were agreed in the post-scoping consultation — see below.
	Cumulative Assessment – the Council requests to be consulted on the final list of sites to be included in the Cumulative Landscape and Visual Impact Assessment (CLVIA). Consideration should also be given to any potential cumulative impacts the proposal will have with the Inverary-Crossaig Overhead Power Line project. The CLVIA should be prepared in accordance with NatureScot Guidance.	Noted. Further consultation with ABC indicated Killearn Wind Farm should be included in the assessment.

Date Received	Consultation Response(s)	How and where is this addressed?
	Visible Aviation Lighting – it is noted that in the interest's aviation safety, as the wind turbine structures will exceed 150m in height visible aviation lighting will be required. Furthermore, that potential visual effects arising from the necessity for this visible lighting will be a key consideration. Consequently, an assessment will form part of the EIA which should be based on current NatureScot visualisation guidance and the assessment of visual effects, carried out as part of the LVIA should consider the effects arising from visible aviation lighting (including night-time). Locations for night-time photomontages are not detailed in the Scoping Report, the Council would wish to be consulted on these when identified.	Noted. The potential effects are assessed in Appendix 6.4: Night-time Assessment. Night-time viewpoints were agreed in the post-scoping report (see below).
12th September 2024	Content with the Technical Note outlining landscape designations, viewpoint list of 20 day-time and 3 night-time viewpoint locations, as well as excluded viewpoints. ABC noted that Killearn Wind Farm (application) was not included in the cumulative assessment.	Killearn Wind Farm has been included in the cumulative assessment.

Assessment Methodology and Significance

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

Evaluation of Significance

- 6.27 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.
- 6.28 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			

- 6.29 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

- 6.30 The viewpoints selected for the assessment have been agreed with NS and ABC through scoping and further consultation as noted in Table 6.1.
- 6.31 A total of 20 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.

- 6.32 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). The viewpoint locations were photographed between June 2024 and April 2025. The visualisations illustrate the proposed turbines and where visible the proposed access tracks and associated infrastructure within 10km.
- 6.33 A number of other viewpoints, suggested through the assessment and scoping process have been illustrated as wirelines in Appendix 6.5. These were all scoped out during the consultation process with the agreement of NS and ABC. The scoped out viewpoints confirm either no visibility or very limited blade / blade tip visibility (Low-Very Low / Very Low or Zero magnitude) which would not be significant. These are listed as follows:
- Machrie Bay (Arran);
 - Blackwaterfoot (Arran);
 - Ardmore Point (Islay);
 - Ardbeg (Islay);
 - Port Ellen (Islay);
 - Singing Sands (Islay);
 - Craighouse, Jura;
 - Lagg, Jura; and
 - Paps of Jura.
- 6.34 Viewpoint analysis has also been used for the night-time assessment which included three of the day-time viewpoint locations agreed with NS and ABC. The Night-time Assessment is reported in Appendix 6.4.

Table 6.3 Viewpoint Selection

VP No.	Viewpoint Name	Distance to nearest turbine (m)	View Direction	Visual Receptor
1	Beinn Bhreac (Kintyre)	1,494	Southwest	Specific - walkers
2*	Arnicle	4,198	East	Specific – residents
3*	Glenbarr War Memorial	5,611	East	Specific – visitors, residents (Illustrative – A83 / Kintyre 66 Route)
4	Kintyre Way near Loch na Naich	6,309	South	Specific – walkers
5	Deer Hill, Carradale	6,380	North / north-west	Specific - walkers
6	Kintyre Way near Lussa Loch	6,502	North / Northeast	Specific - walkers
7	Carradale Point	7,298	West	Specific – visitors / LLA

VP No.	Viewpoint Name	Distance to nearest turbine (m)	View Direction	Visual Receptor
8	Ranachan Hill	11,677	Northeast	Specific - walkers
9	Imachar	12,465	Southwest	Specific / Illustrative – road users, residents, WLA, NSA
10	Gigha Jetty	13,976	Southeast	Specific – ferry users (water based users), nearby residents
11	Creag Bhan, Isle of Gigha	15,826	Southeast	Specific – visitors, GDL
12*	Mullach Buidhe, Arran	16,759	Southwest	Specific – walkers, NSA, WLA, SLA
13	Machrihanish Beach	17,570	Northeast	Specific – visitors
14	Kintyre Way south of Machrihanish	19,402	Northeast	Specific – walkers
15	A83 north of Clachan	20, 448	South/ southwest	Specific – road users / Kintyre 66 Route
16	B842 near Killellan (Mull of Kintyre LLA)	20,461	North / Northeast	Specific – road users, LLA
17	Kennacraig to Islay Ferry	20,786	Southeast	Specific – ferry users (water based users)
18	Claonaig to Lochranza Ferry	22,463	Southwest	Specific – ferry users (water based users)
19	B8024 south of Kilberry	24,346	South/ southeast	Illustrative – road users, cyclists on Sustrans Route 78 and Knapdale / Melford LLA
20	Skipness Castle	26,165	Southwest	Specific – visitors

*Illustrated night-time viewpoint.

Cumulative Wind Energy Development

6.35 Drawing from NS guidance², 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 are included within 10km of the proposed development. In accordance with the same NS guidance, projects at pre-planning or scoping stage have been excluded. However scoping stage wind farms within 10km have been included on the viewpoint wirelines.

6.36 The baseline of other wind energy development within the LVIA Study Area has been revised to accord with ABC's wind farm database (Argyll and Bute Renewables Web

² Guidance: Assessing the Cumulative Landscape and Visual Impacts of Onshore Wind Energy Developments, NatureScot (March 2021).

Map App) and other wind energy developer sources, up until a working 'cut off' date of 15th April 2025.

- 6.37 In total, 23 other wind energy developments are included in the assessment as listed in Table 6.4 and illustrated in Figure 6.12. As of April 2025, this includes 13 existing wind farms, six consented developments, and four applications in the Study Area. Notably, most other wind farm development (excluding turbines below 50m to blade tip) are located within the *Upland Forest Moor Mosaic* LCT.
- 6.38 The cumulative assessment has assessed 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.
- 6.39 The Applicant is aware of a request for a Scoping Opinion submitted by SSE Transmission for a 132KV overhead line (OHL) to transport electricity from the consented Tangy IV Wind Farm and application Cnoc Buidhe Wind Farm. This was received by the ECU on 10th March 2025. This proposal encroaches within the eastern extent of the proposed development's Site boundary and discussions are ongoing between the Applicant and SSE to amend the OHL proposal to allow the two proposals to co-exist. This however remains unresolved at the time of undertaking this assessment. Accordingly, as per EIA regulations and good practice, the assessment of a proposed cumulative scheme which as presently proposed by SSE, conflicts with an option over land held by the Applicant, is problematic for two reasons, as set out below and is therefore excluded from the cumulative assessment:
- There is no guarantee over the final orientation of the OHL scheme and therefore any cumulative assessment would be based on inaccurate and speculative information - the uncertain nature of SSE optioneering, timescales, and lack of final design or land rights, means that any assessment would be difficult; and
 - Given the preparation of the EIA Report for the proposed development before the submission of the SSE Scoping Report, it is best practice for schemes which come later to assess what is already present or 'on the table' at that point, and not vice versa.

Table 6.4 Wind Energy Development Included in the CLVIA

Reference ³	Name	Distance (m) ⁴	Number of turbines	Blade tip Height (m)	Host Landscape Character Type
EXISTING WIND ENERGY DEVELOPMENTS WITHIN 45KM					
E01	Beinn an Tuirc I <i>(likely to be decommissioned in 2028, subject to its</i>	226	45	100	Upland Forest Moor Mosaic

³ The reference number in the table relates to that used in the figures.

⁴ Measured from the nearest turbine of each wind energy development.

Reference ³	Name	Distance (m) ⁴	Number of turbines	Blade tip Height (m)	Host Landscape Character Type
	<i>application for life extension until 2034)</i>				
E02	Blary Hill	490	14	110	Upland Forest Moor Mosaic
E03	Beinn an Tuirc II	1,105	19	100	Upland Forest Moor Mosaic
E04	Auchadaduie	3,035	3	100	Upland Forest Moor Mosaic
E05	Beinn an Tuirc III	3,218	14	126	Upland Forest Moor Mosaic
E06	Deucheran Hill	6,178	9	76	Upland Forest Moor Mosaic
E07	Tangy I	8,552	15	75	Upland Forest Moor Mosaic
E08	Tangy II	8,669	7	75	Upland Forest Moor Mosaic
E09	Cour	10,705	10	111.25	Upland Forest Moor Mosaic
E10	Gigha Community	13,395	4	45 / 59	Coastal Parallel Ridges
E11	Freasdail	22,109	11	100	Upland Forest Moor Mosaic
E12	Allt Dearg	39,423	12	81	Knapdale Upland Forest Moor Mosaic
E13	Sròndaire	39,882	3	100 / 120	Knapdale Upland Forest Moor Mosaic
CONSENTED WIND ENERGY DEVELOPMENT WITHIN 45KM					
C01	Clachaig Glen	4,104	12	185/200	Upland Forest Moor Mosaic
C02	Tangy IV Repower	7,452	16	149.9	Upland Forest Moor Mosaic

Reference ³	Name	Distance (m) ⁴	Number of turbines	Blade tip Height (m)	Host Landscape Character Type
C03	High Constellation	12,283	10	149.9	Upland Forest Moor Mosaic
C04	Eascairt	19,283	13	100	Upland Forest Moor Mosaic
C05	Airigh	27,369	14	149.5/138.5/131	Knapdale Upland Forest Moor Mosaic
C06	Rowan	32,749	13	200	Knapdale Upland Forest Moor Mosaic
APPLICATION WIND ENERGY DEVELOPMENT WITHIN 45KM					
A01	West Torrisdale	1,684	9	149.9	Upland Forest Moor Mosaic
A02	Cnoc Buidhe	3,070	29	180/200	Upland Forest Moor Mosaic
A03	Killeen	6,039	9	180	Upland Forest Moor Mosaic
A04	Breackerie	21,961	13	200	Mull of Kintyre Upland Forest-Moor Mosaic
SCOPING WIND ENERGY DEVELOPMENT WITHIN 10KM (Included on Viewpoint Wirelines only)					
S01	Deucheran Hill 2	4,637	23	220	Upland Forest Moor Mosaic

Zone of Theoretical Visibility and Viewpoint Analysis

6.40 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 threshold indicating the area and / or 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

6.41 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.

6.42 A number of ZTV maps have been provided as follows:

- Figure 6.2a: 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 6.2b: illustrates the ZTV calculated to blade tip (land only) at 1:360,000 scale across the 45km Study Area and provides an overview of the theoretical extent of visibility with viewpoint locations;
- Figure 6.3a: 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 6.3b: illustrates the ZTV calculated to hub height (land only) 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 1:80,000 scale, showing the area within 10km of the proposed development with viewpoint locations;
- Figure 6.5: (A0 fold-out) illustrates the ZTV calculated to blade tip at 1:120,000 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.

6.43 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 existing and consented wind farms, and wind farm applications within the 45km Study Area. 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

6.44 The ZTV pattern for the proposed development reflects the underlying landform within the 45km Study Area and the percentages of theoretical visibility cover summarised as follows:

- Total ZTV (to blade tip) coverage (land only) accounts for 27% of the Study Area (55% including the sea);
 - Total ZTV (to hub height) coverage (land only) accounts for 23% of the Study Area (44% including the sea);
- 6.45 The onshore ZTV coverage for the proposed development extends along parts of the Kintyre peninsula and includes parts of the islands of Arran, Gigha, Islay and Jura. Within 10km theoretical visibility is more limited, overlapping with roughly one quarter of the land and excluding most coastal areas. The proposed turbines, although in an elevated location within an open upland setting, would be located on a west facing slope to the south of Barr Glen surrounded by low-rising summits to the east, south and northeast formed from Beinn an Tuirc (454m AOD) to the east / southeast, Beinn Bhreac (425m AOD) to the northeast, Braid Hill (373m AOD) to the south, and low-lying forested hills to the west and southwest (Cnoc Reamhar (311m AOD) to the southwest, and Blary Hill (283m AOD) to the west). To the northwest, further low hills and forest continue the undulating uplands to the north of Barr Glen. To the south Allt nan Calltuinn follows a winding valley between Braid Hill / Meall Buidhe to the east and unnamed hills to the west, and discharges into Lussa Loch. ZTV coverage within 10km therefore occurs within the immediate area contained within the surrounding summits to the east, northeast and south where there would be theoretical visibility extending to within 2km, and along Barr Glen where theoretical visibility extends for approximately 6km to the west and the same distance to the north. Beyond this theoretical visibility becomes patchy. A band of visibility is indicated to the south along Allt nan Calltuinn and Lussa Loch and flanking hills although much of this area is covered by commercial forestry. Further theoretical visibility is indicated on isolated slopes and summits.
- 6.46 Between 10km and 20km, land-based coverage becomes fragmented and patchy and is most prevalent on the landform to the south and southwest of Campbeltown (Viewpoints 13, 14 and 16), on facing slopes, summits and coastline to the west of the Isle of Arran (Viewpoints 9 and 12), and to the east of the Isle of Gigha (Viewpoints 10 and 11). Elevated areas to the north and northeast are also overlapped by the ZTV. Offshore there is some ZTV coverage indicated along the Kilbrannan Sound and the Sound of Gigha.
- 6.47 Beyond 20km, land based ZTV coverage is limited, occurring on scattered elevated slopes and summits on the Mull of Kintyre, the Isle of Arran, and Knapdale. Visibility is also indicated as the peninsular broadens allowing views along the coastline at Skipness (Viewpoint 20) and south of Kilberry (Viewpoint 19). There is also ZTV coverage overlapping with the south-eastern edge of Islay and Jura beyond 30km distance.
- 6.48 There is more extensive ZTV coverage overlapping large areas of the surrounding sea.

Viewpoint and Cumulative Viewpoint Analysis

- 6.49 The viewpoint analysis has been conducted from 20 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 6.19-6.38. The figures accord with Scottish Natural Heritage, *Visual Representation of Wind Farms: Good Practice Guidance*, Version 2.2, February 2017 which was agreed with NS and ABC through consultation.

- 6.50 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.
- 6.51 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 Significant Effects: proposed development

- 6.52 The location of the proposed development within the central upland spine of the Kintyre peninsula would largely limit the extent of land-based theoretical visibility to elevated areas. The viewpoint analysis indicates that significant visual effects are likely to affect limited locations within approximately 6.3km distance from the proposed development (subject to a clear view of the proposed turbines, landform and vegetation screening), as indicated by viewpoints 1-4 inclusively.
- 6.53 The greatest magnitude of change is visible at Viewpoint 1 (High) and Viewpoints 2-3 (High-Medium) (all other viewpoints are assessed as of Medium-Low magnitude or less). It may be noted that the visual composition of the proposed development presents as a simple and cohesive wind farm set within a large-scale landscape where there is a strong visual rationale for its location on the 'central spine' of the Kintyre peninsula, adjacent to an existing cluster of wind farm development comprising Beinn an Tuirc I / II and Blary Hill, with Beinn an Tuirc III and Auchadaduie located slightly further afield.
- 6.54 The effects on viewpoints 1-4 would also be cumulative and further cumulative analysis provided below. There would be no significant visual effects from the east (including the Isle of Arran), northeast, southeast, south and southwest of the proposed development. This also includes no significant effects from the Isles of Gigha, Jura and Islay further to the northwest.

Potential for Significant Cumulative Visual Effects

- 6.55 The majority of wind farm development is located along the upland spine of the Kintyre peninsula. The proposed development is located adjacent to the existing Beinn an Tuirc I Wind Farm to the east, Beinn an Tuirc II Wind Farm to the south-east and Blary Hill Wind Farm to the west (all within 1km of the proposed development). There are approximately six further existing and consented wind farms within 10km of the proposed development and three application wind farms and further existing and consented wind farms beyond 10km to the north along the upland spine and in the Knapdale uplands and a further application southwest of Campbeltown to the south. As a result, there are no viewpoint locations where the proposed development would be visible in isolation and in many viewpoint locations, the proposed turbines would be visible behind or adjacent to other wind farm development.
- 6.56 Where the proposed turbines are most visible from the upland spine (Viewpoint 1 and 4), and from Barr Glen (which penetrates into the upland spine) (Viewpoints 2 and 3), the proposed development would contribute to significant cumulative visual effects of

existing and consented wind farms (notably Beinn an Tuirc I, II and III, Blary Hill, Auchadaduie, Deucheran Hill and Clachaig Glen), however the additional cumulative effect in Viewpoint 4 would not be significant. The majority of other viewpoint locations are from lower lying locations where the proposed turbines would be visible behind or adjacent to other wind farm development which are often closer to the viewer and therefore more likely to significantly affect the view.

- 6.57 It is to be noted that subject to its extension application, Beinn an Tuirc I is likely to be decommissioned in the same year as the start of the construction phase of the proposed development (subject to grid reform), thereby reducing the cumulative effect.
- 6.58 In general terms where the proposed development is visible in views looking north (Viewpoints 6, 8, 13, 14 and 16), the turbines would be largely visible behind the existing and consented Tangy / Beinn an Tuirc III turbines which would have a significant visual effect (with the exception of Viewpoint 16 where the visual effect would not be significant as a result of existing or consented wind farms due to distance and screening). There would be no significant effects as a result of the proposed development from these locations.
- 6.59 In views from the northwest (Viewpoints 10, 11, 12 and 19), significant visual effects would result from the introduction of the consented Clachaig Glen Wind Farm and the application Killean Wind Farm (particularly in views from the Isle of Gigha (Viewpoints 10 and 11)) which would be visible nearer to the western edge of the upland spine. There would be no significant visual effects as a result of the proposed development which would be partly visible as part of a cluster of turbines.
- 6.60 Cumulative effects from the east would mostly be associated with the introduction of the West Torrisdale application Wind Farm which would be located towards the eastern edge of the upland spine and parts of the western coast of Arran and would result in significant visual effects from Viewpoint 5, 7 and 9.
- 6.61 Other significant visual effects would result from wind farms to the north of the upland spine (Escairt and High Constellation wind farms) in views from offshore receptors on the Claonaig to Lochranza Ferry route. There would be no significant effects from the proposed development from these receptors.
- 6.62 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.
- 6.63 As a precaution, the visual assessment has considered all of those receptors within 10km of the proposed development and national level receptors within 45km.

Potential for significant night-time visual effects

- 6.64 A night-time assessment of the effects of the visible aviation warning lights is provided in Appendix 6.4 and illustrated by three night-time viewpoints: Viewpoint 2: Arnicle; 3:

Glenbarr War Memorial; and 12: Mullach Buidhe (Beinn Bharrair) on the Isle of Arran. The night-time viewpoint analysis in Appendix 6.4, concludes that allowing for the embedded mitigation, none of the viewpoints would be significantly affected by the proposed visible aviation warning lights.

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. 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 Appendix 6.1 as follows:
- 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 with the proposed development are reported.
- 6.67 Further information on Table 6.5 is provided in Technical Appendix 6.2.

Table 6.5 Summary of Viewpoint Analysis

Viewpoint No. and Title	FoV	Distance to nearest turbine (m)	Viewpoint Analysis: proposed development (PD)			Cumulative Viewpoint Analysis: proposed development (PD) and other wind farms					
			Sensitivity	Magnitude	Level of Effect:	Cumulative Scenario 1:			Cumulative Scenario 2:		
						Magnitude (Existing and Consented)	Additional Level of Effect (PD)	Combined Level of Effect	Magnitude (Applications)	Additional Level of Effect (PD)	Combined Level of Effect
1. Beinn Bhreac (Kintyre)	27°	1,494	High	High	Substantial	Medium	Substantial	Substantial (PD, Beinn an Tuirc I, II, and III, Blary Hill, Clachaig Glen)	High-Medium	Substantial	Substantial (PD, Beinn an Tuirc I, II, and III, Blary Hill, Clachaig Glen, West Torrisdale, Killean)
2. Arnicle	22°	4,198	High (residents) Medium (road users)	High-Medium	Substantial to Major (residents) Major to Moderate (road users)	High-Medium	Major to Moderate / Moderate	Substantial to Major / Major to Moderate (PD, Blary Hill, Auchadaduie)	Low	Major to Moderate / Moderate	Substantial to Major / Major to Moderate (PD, Blary Hill, Auchadaduie)
3. Glenbarr War Memorial	16°	5,611	High	High-Medium	Substantial to Major	High-Medium	Major to Moderate / Moderate	Substantial to Major (PD, Blary Hill, Auchadaduie)	High-Medium	Major to Moderate / Moderate	Substantial to Major (PD, Blary Hill, Auchadaduie, Cnoc Buidhe)
4. Kintyre Way near Loch na Naich	16°	6,309	High	Medium - Low	Major to Moderate	High	Moderate	Substantial (Clachaig Glen and to a lesser degree, PD)	High	Moderate	Substantial (Clachaig Glen, Killean and to a lesser degree, PD)

Viewpoint No. and Title	FoV	Distance to nearest turbine (m)	Viewpoint Analysis: proposed development (PD)			Cumulative Viewpoint Analysis: proposed development (PD) and other wind farms					
			Sensitivity	Magnitude	Level of Effect:	Cumulative Scenario 1:			Cumulative Scenario 2:		
						Magnitude (Existing and Consented)	Additional Level of Effect (PD)	Combined Level of Effect	Magnitude (Applications)	Additional Level of Effect (PD)	Combined Level of Effect
5. Deer Hill, Caradale	6°	6,380	High	Low-Very Low	Moderate to Minor	Low	Moderate to Minor	Moderate (Deucheran Hill, Cour, High Constellation)	Medium	Moderate to Minor	Major (West Torrisdale)
6. Kintyre Way near Lussa Loch	10°	6,502	High	Low	Moderate	Medium	Moderate to Minor	Major (Beinn an Tuirc II/ III)	High	Moderate to Minor	Substantial (Beinn an Tuirc II/III, Cnoc Buidhe)
7. Carradale Point	7°	7,298	High	Very Low	Minor	Low-Very Low	Negligible	Moderate to Minor	Medium	Negligible	Major (West Torrisdale)
8. Ranachan Hill	7°	11,677	High	Low	Moderate	Medium	Moderate to Minor	Major (Tangy I/II, Tangy IV)	Medium	Moderate to Minor	Major (Tangy I / II, Tangy IV, Cnoc Buidhe, Breackerie)
9. Imachar	3°	12,465	High	Very Low	Negligible	Low	Negligible	Moderate to Minor	Medium - Low	Negligible	Major to Moderate (West Torrisdale)
10. Gigha Jetty	9°	13,976	High	Low (Low-Very Low)	Moderate to Minor	Medium-Low	Minor	Major to Moderate (Clachaig Glen)	Medium	Minor	Major to Moderate (Clachaig Glen, Killeen)
11. Creag Bhan, Isle of Gigha	8°	15,826	High	Low	Moderate	Medium-Low	Moderate to Minor	Major to Moderate (Clachaig Glen)	Medium-Low	Moderate to Minor	Major to Moderate (Clachaig Glen, Killeen)

Viewpoint No. and Title	FoV	Distance to nearest turbine (m)	Viewpoint Analysis: proposed development (PD)			Cumulative Viewpoint Analysis: proposed development (PD) and other wind farms					
			Sensitivity	Magnitude	Level of Effect:	Cumulative Scenario 1:			Cumulative Scenario 2:		
						Magnitude (Existing and Consented)	Additional Level of Effect (PD)	Combined Level of Effect	Magnitude (Applications)	Additional Level of Effect (PD)	Combined Level of Effect
12. Mullach Buidhe, Arran	5°	16,759	High	Low-Very Low	Moderate to Minor	Low-Very Low	Moderate to Minor	Moderate to Minor	Low	Minor	Moderate
13. Machrihanish Beach	2°	17,570	High	Very Low	Negligible	Medium	Negligible	Major (Tangy I / II / IV)	Medium-Low	Negligible	Major (Tangy I / II / IV, Cnoc Buidhe)
14. Kintyre Way south of Machrihanish	4°	19,402	High	Low-Very Low	Moderate to Minor	Medium	Minor to Negligible	Major (Tangy I / II / IV)	Medium	Negligible	Major (Tangy I / II / IV, Cnoc Buidhe)
15. A83 north of Clachan	3°	20,448	High	Very Low	Negligible	Low	Negligible	Moderate to Minor	Low	Negligible	Moderate to Minor
16. B842 near Killellan (Mull of Kintyre LLA)	5°	20,461	High	Low-Very Low	Moderate to Minor	Low	Moderate to Minor	Moderate to Minor	Medium	Minor	Substantial (Breackerie)
17. Kennacraig to Islay Ferry	6°	20,786	High	Very Low	Minor to Negligible	Low	Negligible	Moderate	Low	Negligible	Moderate
18. Claonaig to Lochranza Ferry	3°	22,463	High	Very Low	Negligible	Medium	Negligible	Major (Escairt, High Constellation)	Very Low	Negligible	Major (Escairt, High Constellation)
19. B8024 south of Kilberry	5°	24,346	High-Medium	Very Low	Negligible	Low-Very Low	Negligible	Moderate to Minor	Low	Negligible	Moderate to Minor
20. Skipness Castle	3°	26,165	High	Very Low	Negligible	Low	Negligible	Moderate	Very Low	Negligible	Moderate

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

Baseline of Landscape Receptors

- 6.68 Information on the existing landscape resource or baseline conditions included in this assessment has been collected from local development plans, and the ABLWECS as well as OS maps and 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.
- 6.69 The baseline inventory includes the following landscape receptors:
- Landscape Character; and
 - Landscape Planning Designations and WLAs.
- 6.70 The ZTV and viewpoint analysis indicates that significant visual effects are likely to affect limited locations within approximately 6.3km distance from the proposed development (subject to a clear view of the proposed turbines, landform and vegetation screening), as indicated by Viewpoints 1-4, inclusively. Taking a precautionary approach, the assessment has focused on those local landscape receptors, overlapped by the blade tip ZTV within 10km of the proposed development and nationally important landscape planning designations within the wider 45km 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.
- 6.71 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 limited to the host *Upland Forest Moor Mosaic* LCT.

Baseline Landscape Character

- 6.72 Landscape across Scotland is classified into different types of landscape character (LCTs) by NS in their Landscape Assessment (2019)⁵. Whilst some baseline reference has been made to this, most recent assessment, NS advises that the ABLWECS (revised 2017) should be used in relation to wind farm development. This is because the ABLWECS provides information on landscape character and its sensitivity at a strategic level of the wind farm development. The assessment divides the landscape into broad Landscape Character Types (LCT), illustrated in Figures 6.7 and 6.8.
- 6.73 The Site lies within an extensive area of *Upland Forest Moor Mosaic* LCT which covers most of the Kintyre peninsula.
- 6.74 Including the host LCT, there are two LCTs within 10km of the proposed development that are also overlapped by the blade tip ZTV, and included in the assessment as follows:
- 6 - Upland Forest Moor Mosaic ('host' LCT); and
 - 20 – Rocky Mosaic.

⁵ NatureScot National Landscape Character Assessment (2019).

- 6.75 Other LCTs within 10km are not covered by the ZTV and would have no view of the proposed development including 3 – Hidden Glens LCT, and 19 – Kintyre Coastal Plain LCT.
- 6.76 There are other LCTs within the nationally designated North Arran NSA (overlapped with the North Arran WLA) that are overlapped by the blade tip ZTV and included in the assessment as follows:
- 1b) Arran Raised Beach Coast;
 - 4a) Arran Coastal Headlands;
 - 6) Coastal Lowland Moor; and
 - 21b) Arran Rugged Granitic Uplands.
- 6.77 LCTs within the Jura, Knapdale and Kyles of Bute NSAs are scoped out of the assessment as agreed with NS during consultation.

Baseline Planning Designations

- 6.78 Landscape planning designations and WLAs within the 45km Study Area are illustrated in Figure 6.9a which also includes other cumulative wind farm development.

National Designations

- 6.79 The North Arran NSA is located approximately over 12.3km east of the proposed development (on land at Imachar, and over 11.3km from the NSA boundary in the Kilbrannan Sound), and as agreed with NS through consultation, effects on the SLQs of the NSA are included in the assessment.
- 6.80 All other NSAs within 45km have been excluded from the assessment, as agreed with NS.

Local Designations

- 6.81 The North Arran Special Landscape Area (SLA) is overlapped by the ZTV at a distance of approximately 13km to the east and is included in the assessment as agreed through consultation.
- 6.82 All remaining local designations including all Local Landscape Areas in Argyll and Bute and the remaining SLAs in North Ayrshire have been excluded from the assessment due to no or very limited visibility, and the proposed development seen beyond other existing and consented wind farms.

Wild Land Areas

- 6.83 As agreed with NS, effects on the wild land qualities of the North Arran WLA are excluded from the assessment.

Gardens and Designed Landscapes

- 6.84 Gardens and Designed Landscapes (GDLs) are considered under visual receptors as a visitor or tourist attraction and are also assessed in Chapter 10: Cultural Heritage. Achamore House is located approximately 14km to the northwest on Isle of Gigha and is overlapped by the ZTV. All remaining GDLs within the Study Area are outwith the ZTV, including Stonefield Castle Hotel, Brodick Castle, and Mount Stuart (Kirriemuir) GDLs.

Baseline of Visual Receptors

- 6.85 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 settlements and residential properties;
- Views experienced whilst travelling through the landscape (road / rail / ferry users, walkers, horse riders and cyclists for example); and
- Views from tourist and recreational destinations.

- 6.86 As noted previously, the ZTV and viewpoint analysis indicates that significant visual effects are likely to affect limited locations within approximately 6.3km distance from the proposed development (subject to a clear view of the proposed turbines, landform and vegetation screening), as indicated by Viewpoints 1-4 inclusively. Taking a precautionary approach, the assessment has focused on those visual receptors, overlapped by the blade tip ZTV within 10km of the proposed development, in order to assess the likely significant visual effects. Within the wider 45km LVIA Study Area, the assessment has considered receptors of national importance such as Scotland's Great Trails, Sustrans Cycle Routes and popular hill walking summits (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

- 6.87 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 included in the assessment are those defined in the Argyll and Bute LDP 2 (2024) that are within 10km and overlapped by the blade tip ZTV. Settlement within the Study Area is relatively sparse, with small settlements and scattered residential properties primarily located on the coastal edge of the Kintyre peninsula.
- 6.88 The only settlement within 10km of the proposed development that is overlapped by the blade tip ZTV is Glenbarr, located approximately 6.15km to the west and is included in the assessment.
- 6.89 A Residential Visual Amenity Assessment (RVAA) has been included in the assessment (Technical Appendix 6.3) within approximately 3km of the proposed turbines. All six properties are located within Barr Glen with their principal views orientated toward the south and southwest across the glen.

Visual Receptors: Transport Routes

- 6.90 Main transport routes (A and B class roads) within 10km of the proposed development that are overlapped by the blade tip ZTV and included in the assessment are listed as follows:
- A and B class roads within 10km:
 - A83 (overlapped by the Kintyre 66 Tourist Route).
 - Unclassified, minor roads within 10km:
 - Barr Glen Road.
 - Ferry Routes within 45km:
 - Tayinloan – Gigha to the north-west of the site;
 - Kennacraig – Port Ellen to the northwest of the site;
 - Kennacraig – Port Askaig to the northwest of the site;
 - Claonaig - Lochranza to the northeast of the site; and
 - Tabert - Lochranza to the northeast of the site.
- 6.91 There would be no visibility of the proposed development from the B842 and B843 within 10km. Whilst the ZTV indicates limited theoretical visibility from these routes beyond 10km, viewpoint analysis (Viewpoint 16) indicates that there would be no significant effects from these routes at these distances, therefore they are excluded from the assessment.
- 6.92 The minor road leading from the A83 to Lussa Loch is overlapped by the Kintyre Way. As such, it has been assessed under recreational routes.

Visual Receptors: Recreational Routes

- 6.93 The recreational routes include Core Paths, Heritage Paths and Scottish Hill Tracks which have been assessed within 10km of the proposed development and Sustrans Cycle routes and national level long distance routes such as Scotland's Great Trails, which are assessed within the wider 45km LVIA Study Area.

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

- 6.94 National recreational routes within 45km of the proposed development that are overlapped by the blade tip ZTV (Figure 6.10) are listed as follows:
- The Kintyre Way (overlapping with Core Paths C088 and others beyond 10km);
 - Kintyre 66 Tourist Route (overlapped with the A83 and part of the B842); and
 - Arran Coastal Way.
- 6.95 The Sustrans reclassified route (Caledonia Way) overlapped with the B842 and B8024 is largely outwith the ZTV. Viewpoint 19 located on this route in Knapdale concludes no significant effects at these distances and therefore is excluded from the assessment.

Local Recreational Routes within 10km

- 6.96 Local Recreational Routes within 10km of the proposed development that are overlapped by the blade tip ZTV (Figure 6.11) are listed as follows:
- Local Recreational Routes within 10km:
 - Core Path C088 Campbeltown to Cloanaig (i, k, and l) (overlapped with Kintyre Way);
 - Core Path C094 Tayinloan – Carradale East-West Link (b) (overlapped with Kintyre Way); and
 - Core Path C304 – Glenbarr School Route
- 6.97 Overlapping recreational 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.

Visual Receptors: Recreational and Tourist / Visitor Attractions

- 6.98 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 Chapter 10: Cultural Heritage and Chapter 13: Socio-economics, Recreation and Tourism. 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. The assessment has included Corbett Mountain summits on Arran and their associated access routes which are overlapped by the blade tip ZTV. These receptors are indicated on the OS base maps and highlighted in Figures 6.10 and 6.11.
- 6.99 Recreational and tourist / visitor attractions that are overlapped by the blade tip ZTV (Figure 6.11) within 10km of the proposed development and included in the assessment are listed as follows:
- Glenbarr War Memorial;
 - Glenbarr Abbey;
 - Carradale Point; and
 - Cnoc nan Gabhar (Deer Hill).
- 6.100 The remaining attractions / destinations within 10km on Kintyre are outwith the ZTV and are therefore excluded from the assessment.
- 6.101 There are a number of island destinations surrounding the Kintyre peninsula including Arran, Islay, Jura and Gigha. Wireline and ZTV analysis indicate that effects on all four islands would be limited with intervening distance rendering no significant visual effects.

Gardens and Designed Landscapes

- 6.102 Within the wider LVIA Study Area, only Achamore House on Gigha is overlapped by the ZTV at approximately 14km distance. The GDL is densely planted and surrounded by mature woodland. It has been excluded from further assessment on the basis that views of the proposed development would be heavily suppressed by vegetation.

Offshore recreational users: recreational yachts / pleasure boats and sea kayaks

- 6.103 Most of the coastline, and the inshore waters within 1-3km from the coast of Kintyre are outwith the ZTV. Locations with ZTV coverage within 10km include the Sound of Jura and the Sound of Gigha to the west and north-west, as well as the Kilbrannan Sound to the east. Effects on these receptors are included as part of the ferry routes. Beyond 10km, whilst there is visibility from parts of Kilbrannan Sound and Sound of Gigha / Jura, viewpoint analysis confirms non-significant visual effects at these distances.

Hills and Mountains (not covered by recreational routes)

- 6.104 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.
- 6.105 Although there are no Munros within the Study Area, four Corbetts on the Isle of Arran (Goatfell, Beinn Tarsuinn, Cir Mhor and Caisteal Abhail) and one Corbett on the Isle of Jura (Beinn an Oir) are located within the LVIA Study Area and overlapped by the ZTV. The views from the Corbetts on Arran would be similar from the nearby hill of Mullach Buidhe to the west. The viewpoint analysis confirms that the view from Mullach Buidhe (Viewpoint 12) would not be significantly affected by the proposed development. The Corbett on Jura (and nearby Grahams which together make the Paps of Jura) are at a distance of approximately 44.5km to the north-west (Appendix 6.5). For these reasons, all five Corbetts and the Grahams on Jura are excluded from further assessment.

Future Baseline

- 6.106 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).
- 6.107 The LVIA also recognises that some elements of the proposed development such as access tracks will be permanent and remain beyond the construction and decommissioning period, although access tracks may re-vegetate over time if left unused. The operation period of up to 35 years, although 'long-term' is assessed as though

it were permanent, whilst noting that the effects of the proposed turbines would be reversible once decommissioned.

6.108 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.

6.109 Change to the future baseline of other large scale wind energy development closest to the proposed development, that can be reasonably predicted, is set out in Table 6.6. 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
Allt Domhain Wind Farm		proposed operational period of 35 years						
Existing Wind Energy Developments within 10km								
E01. Beinn an Tuirc I	2001			Operational until 2028, with Section 42 application to extend until 2034, if granted. Otherwise, will be decommissioned in the same year as construction of the proposed development unless there would be an application for it to be repowered.				
E02. Blary Hill	2022	Operational until 2047						
E03. Beinn an Tuirc II	2014	Operational until 2041						
E04. Auchadaduie	2019	Operational until 2044						
E05. Beinn an Tuirc III	2021	Operational until 2046						
E06. Deucheran Hill	2001		Operational until 2026. Scoping scheme aiming to repower after end of 2026.					
E07. Tangy I	2003		Operational until end of 2026 after S42 extension granted.					
E08. Tangy II	2007		Operational until end of 2026 after S42 extension granted.					
Consented Wind Energy Developments within 10km								
C01. Clachaig Glen	2027	Consented 08/11/2024 by DPEA. Construction to begin within three years of consent; consent for 35 years from completion.						
C02. Tangy IV Repower	2027	Consented 20/12/2019. Tangy I & II (22 turbines) will be removed and replaced with 16 turbines after end of 2026.						

Mitigation Inherent in the Proposed Development

6.110 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.

6.111 The design evolution for the proposed development is provided in Chapter 4. A project description including the associated infrastructure is detailed in Chapter 3. Landscape related aspects of the design and mitigation are described in this section. The layout of the proposed development and its various infrastructure components are shown in Figure 3.1.

Design Statement

6.112 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 *Upland Forest Moor Mosaic LCT*, described by the ABLWECS.

6.113 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 in the ABLWECS, 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).

6.114 A key consideration for the proposed development was the landscape character and expansive scale and simplicity of the host *Upland Forest Moor Mosaic LCT* which has a reduced susceptibility to very 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.

6.115 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 12 turbine layout was established by taking account of a 1.5km buffer from the nearest inhabited residential properties with the site location being removed from any landscape designations;
- The layout has 'pulled back' some of the turbines from the northwest and east where they would be more visible from Barr Glen, the east coast of Kintyre and the Isle of Arran, particularly western coastal locations. Visibility from the A83 (Kintyre 66 Tourist Route) is also limited as a result of this pull back. This has also resulted in the location of the turbines being on the central upland spine of the Kintyre peninsula;
- Three turbines were removed from the original layout and the turbine height was selected in response to the landscape scale, character and 'fit' with other wind farm development, with the turbine height of five turbines set at 230m and the remaining four turbines at 200m to blade tip;
- Special attention was paid to the extent of visibility of the turbines from the west coast of Arran which has minimised hub visibility and reduced the presence of aviation warning lights;
- Special attention was also paid to the visual composition of the turbines and the cumulative appearance of the proposed development alongside Blary Hill and Beinn an Tuirc wind farms. It is to be noted that subject to its extension, Beinn an Tuirc I is likely to be decommissioned in the same year as the start of the construction phase of the proposed development, thereby reducing the cumulative effect; and
- Design consideration was also given to the cumulative design of the neighbouring wind farms including Blary Hill and Beinn an Tuirc which create one 'wind farm group' or cluster.

6.116 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.

6.117 The advice in the ABLWECS identified 'very *limited scope*' for a wind farm in the *Upland Forest Moor Mosaic* LCT. However, the site location demonstrates 'opportunities' for wind farm development. These relate to the simple landform which is largely sparsely populated and remote from the coastline. The design process has therefore considered the local landscape character, scale, form, and the effects on views and visual receptors in the surrounding area, particularly from Barr Glen and the Isle of Arran. The proposed development has evolved from the scoping stage, through the design process which has involved a number of iterations as set out in Chapter 4 to provide an improved 'landscape fit'. This has led to a reduction in the horizontal and vertical scale of the proposed development and a reduction in turbine numbers from 12 to 9 and reducing the horizontal extent of the proposed development. The Site

infrastructure, including the access road and the locations of the temporary construction compound and proposed substation compound are also discretely located to mitigate the effects on the local landscape character.

Design Consideration in relation to the ABLWECS

- 6.118 The ABLWECS provides specific landscape advice on landscape sensitivity for different areas of landscape character to 'generic' wind farm development. Its purpose is not to provide advice on specific wind farm development such as the proposed development but is a useful starting point in the design process.
- 6.119 The constraints and opportunities of the *Upland Forest Moor Mosaic* LCT reported in the ABLWECS have been reviewed in the design evolution and assessment process of the proposed development as set out in Table 6.7.

Table 6.7 Consideration of the ABLWECS

ABLWECS	Design consideration of the proposed development
Upland Forest Moor Mosaic - Constraints	
<i>The more rugged landform of smaller interlocking hills and slopes which provide a backdrop to the settled coastal landscapes of the Rocky mosaic (20) and the Bay Farmland(14) on the outer fringes of the Kintyre peninsula and which are prominent in views from roads and settlement.</i>	The hills within the Site are not particularly high or 'rugged', appearing more as undulating occasionally craggy hills, set within the centre of an upland plateau away from the more rugged slopes at the edge of the plateau landscape. Views towards these hills from roads, settled coastal landscapes of the <i>Rocky mosaic</i> (20) and the <i>Bay Farmland</i> (14) on the outer fringes of the Kintyre peninsula would be very limited as illustrated in the ZTVs. Where visible, the proposed development would be seen in views beyond the outer fringe hills, and in the context of other existing and consented wind farms, some of which are closer and more prominent than the proposed development.
<i>The more pronounced, rugged and higher hill summits, including Beinn Bhearc, and Beinn an Tuirc, which are particularly visible from the sea and Arran to the east, adding interest to the fairly uniform skyline of these uplands. The hill of Cnoc a Bhaile-sois at the northern end of the peninsular is also prominent, particularly in views from the west in the Knapdale area.</i>	The proposed turbines would be located in an area already influenced by wind farm development approximately 1.4km southwest of Beinn Bhearc. The proposed turbines would be set at a lower elevation than Beinn Bhearc summit and would be partially screened by intervening landform in views from Arran as illustrated in Viewpoints 9 and 12.
<i>The narrow settled glens which extend into these uplands – for example Barr Glen and Glen Lussa – which would be sensitive to larger typologies sited on the edge hills and ridges which provide</i>	The proposed turbines would be visible from parts of Barr Glen and Glen Lussa but would be seen set back from the sides of Barr Glen beyond Blair Hill and behind existing wind turbines (Auchadaduie and Blary Hill wind farms) for much of the glen. Views from these areas are illustrated in Viewpoints 2 and 6.

ABLWECS	Design consideration of the proposed development
<i>immediate skylines to these smaller scale landscapes.</i>	
<i>The edges of these uplands which form prominent skylines and containing ridges seem from the intimately scaled and richly diverse Hidden Valleys (3) and coasts around Carradale and Saddle on the east coast of Kintyre.</i>	The proposed turbines would be set back from the coastal edges and would not be visible from the settlements of Carradale and Saddle.
<i>The APQ covering the coastal fringes which abuts this character type and where turbines could potentially impact on special qualities if visible on prominent skylines.</i>	The proposed turbines would not be visible on the skylines from the Kintyre coastal areas covered by local landscape designations as illustrated on the ZTVs.
<i>Views to the mountains of north Arran and Jura from the B8001.</i>	The proposed turbines would not affect views to the mountains of north Arran and Jura from the B8001 as illustrated on the ZTVs and illustrated viewpoints.
<i>Potential cumulative effects with operational and consented wind farms seen from the A83, B842, B8001, from the Kintyre coast. Kilbrannan Sound, Arran (including North Arran NSA and WLA) Gigha and the West Loch Tarbert area.</i>	There would be very limited visibility from the A83 and B842 and no visibility from the B8001 and West Loch Tarbert area. In general, the proposed development would be barely visible all along the Kintyre coast. The proposed turbines would be visible from parts of Arran and Gigha and seen in the context of other operational and consented wind farms. As assessed in Technical Appendix 6.2, there would be no significant cumulative effects as a result of the proposed development when viewed from Arran or Gigha (Viewpoints 9, 10, 11 and 12).
Upland Forest Moor Mosaic - Opportunities	
<i>The generally simple landform and expansive scale of the interior plateau areas.</i>	The proposed turbines would be set within the expansive interior plateau.
<i>The sparsely settled nature of this character type and the relatively limited visibility of the interior of these uplands from surrounding coastal fringes.</i>	The proposed turbines would be set in an upland area, away from settlement and the surrounding coastal fringes.
Upland Forest Moor Mosaic – Cumulative Issues	
<i>Larger turbines and/or more extensive wind farm development sited on the outer edges of the Kintyre uplands where they would be</i>	The proposed turbines would not be located on the outer edges of the Kintyre uplands, rather they would be located in the less sensitive core of the uplands on the central spine of the Kintyre peninsula. As a result, cumulative visual effects as a result of the

ABLWECS	Design consideration of the proposed development
<i>likely to significantly increase landscape and visual impacts on the settled coastal edge of Kintyre and on views from Arran and Gigha and would also further erode the established pattern of wind farm development largely associated with the less sensitive core of these uplands.</i>	proposed development experienced from Arran and Gigha would be limited as illustrated in Viewpoints 9, 10, 11 and 12.
<i>Potential effects on the A83 Tourist Route where any new wind farm development located in this character type could increase sequential cumulative effects with the developments of Allt Dearg/Srondoir, Freasdail, Auchadaduie, Blary Hill and Tangy.</i>	There would be very limited visibility of the proposed development along the A83 / Kintyre 66 Tourist Route. Where it would be most visible at Glenbarr, the turbines would be seen behind the existing Blary Hill and Auchadaduie turbines and would increase the density of turbines in the view at this location. Cumulative sequential effects would therefore be minimised.
<i>Potential effects on views from the B842 on the east coast of Kintyre where any additional development could be seen sequentially with the Cour and Beinn and Tuirc I, II and III wind farms.</i>	There would be very limited visibility along the B842 as indicated by the ZTV. Where visible the turbines would be partially screened by intervening landform due to their position towards the centre of the upland plateau, limited to a hub and mostly blades and blade tips. The turbines would be seen alongside Beinn and Tuirc I, II and III but not with Cour, however, would not contribute to any significant cumulative effects as illustrated in Viewpoints 5 and 7 located off the B842.
<i>Additional wind farms and extension/repowering of operational wind farms which may comprise much larger turbines and could increase inter-visibility and overlap between developments seen from Gigha and Arran and from the A83 and B842 on Kintyre.</i>	The proposed turbines would be intervisible with turbines at Beinn and Tuirc I, II and III and Blary Hill / Auchadaduie in views from parts of Gigha and Arran with very limited visibility from the A83 and no visibility from the B842. These existing and consented wind farms would reach the end of their operational / consented life during or before the lifetime of the proposed development (particularly the smallest turbines at Beinn an Tuirc I) and would either be decommissioned or repowered with larger turbines. There would be intervisibility with other surrounding wind farms where the proposed turbines would add to the concentration of turbines in this part of the landscape.
<i>Extensions or repowering proposals (involving significantly larger turbines) to operational and consented wind farms which could increase the extent of development seen on sensitive skylines above the Hidden Glens (3) or within the narrow, settled Barr Glen and Glen Lussa within this character type.</i>	The proposed turbines would add to the existing visible turbines along Barr Glen and Glen Lussa but would typically be seen behind existing turbines of a similar apparent scale in Barr Glen (Viewpoint 2) or would be partially screened by landform in Glen Lussa (Viewpoint 6). There would be no, or very little potential visibility from the Hidden Glens (3) character type as shown the ZTV analysis.

ABLWECS	Design consideration of the proposed development
<i>Cumulative effects associated with and additional wind farm development located in this character type and in the nearby Mull of Kintyre Upland Forest Moor Mosaic character type (6c) in terms of views from the west coast of Arran which take in the full length of the peninsular.</i>	Due to the location of the proposed turbines towards the centre of the <i>Upland Forest Moor Mosaic</i> character type (6), the proposed turbines would be screened by intervening landform at the eastern edge of the upland plateau resulting in very little visibility from the west coast of Arran as illustrated in Viewpoint 9.
<i>A potential 'corridor' of large wind farm development seen either side of the B8001 which could significantly detract from views to Arran and Jura and affect the experience of travellers using this road and the Lochranza-Claonaig ferry route.</i>	The proposed turbines would not be visible from the B8001 as shown the ZTV. There would be some visibility of the proposed turbines (blades / blade tips) from the Lochranza to Claonaig Ferry however these views would not be significant as illustrated by Viewpoint 18 at over 22km distance.
<i>Significant increases in the extent of wind farm development (as gaps between present clusters of turbines are potentially filled) seen in views from Arran which could present a dominant, continuous and dense band of turbines seen on the skyline – this could include a coalescing effect experienced when looking south down the Kilbrannan Sound from north Arran and from the Lochranza – Claonaig ferry.</i>	The proposed turbines would be located adjacent to existing turbines and would therefore add to the density of turbines in part of the landscape already influenced by wind farm development. In views from North Arran and from the Lochranza – Claonaig ferry there would be limited visibility of the proposed turbines from sea level (Viewpoint 18) and the coastline of North Arran (Viewpoint 9). In elevated views from North Arran, the proposed turbines would be visible in panoramic views and part of the view already influenced by wind farm development (Viewpoint 12) resulting in non-significant effects.
<i>Cumulative effects on the setting of the North Arran NSA and WLA related to the above scenario.</i>	See above.

Landscape Specific Mitigation

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

Construction Mitigation

- 6.121 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 9.2 of this EIA Report.

- 6.122 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.
- 6.123 A Site Restoration Plan will be submitted for approval by ABC 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.
- 6.124 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.
- 6.125 A detailed Construction Method Statement (CMS) would be produced by the construction contractors and agreed with ABC prior to the commencement of works. This will include a description of construction methods and mitigation measures.

New Site Access and Internal Access Tracks

- 6.126 There are two options for accessing the Site - the northern route or the southern route which are illustrated on Figure 3.1 within Volume 2. The Applicant has sought to provide environmental assessment of both routes, and it is intended that only one will be used when any future consent is implemented.
- 6.127 For the northern route option, a total of approximately 13.8km of new wind farm access tracks would be constructed, which includes 6.92km of new cut track between a newly formed junction with the A83 and the lower slopes of Blary Hill, and 4.15km of new cut track and 2.01km of new floating track to the east of Blary Hill (where the route is the same for both options). The tracks 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 0.5m would be floated, comprising a total of approximately 2.01km. The access route would also require a bridge crossing of the Barr Water. This is likely to comprise a single span bridge of 15m to 25m, spanning the potential flood zone. Aggregates required for the crushed stone access tracks would be obtained from local suppliers.
- 6.128 The southern route option would utilise existing access track used for the construction of the Blary Hill Wind Farm. This route would progress down the existing Barr Glen road before using the Blary Hill Wind Farm entrance and using existing track until the point where the existing track bends southwards to facilitate the Blary Hill Wind Farm. At this point, a new track would be constructed straight from west to east towards the point where the two access options meet. This would result in the creation of approximately 2.49km of new cut track before the two options meet, and 4.15km of new cut track and 2.01km of new floating track to the east of Blary Hill (where the route is the same for both options). In addition, approximately 4.21km of the Barr Glen road would be upgraded to facilitate a series of passing places.

- 6.129 Limited sections of the wind farm access tracks would be visible from viewpoints 1, 2, and 3 (northern route) within 10km. These are the only viewpoints within 10km where, apart from the turbines, any other associated infrastructure would be visible. There would also be some limited visibility from Barr Glen Road, which would be accessed by the southern route and crossed by the northern route to the south of Amod, and from the A83 where there would be a junction with the proposed northern route to the north of Glenbarr Primary School. These low levels of visibility of the Site infrastructure confirm minimal landscape and visual effects on the surrounding receptors.
- 6.130 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.

Wind Turbines

- 6.131 A total of nine wind turbines are proposed with a blade tip height of up to 200 / 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.
- 6.132 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.
- 6.133 Aviation warning lights would be required and a lighting strategy to provide mitigation of the potential landscape and visual effects at night is proposed. An assessment of the night-time effects is reported in Technical Appendix 6.4.

Substation

- 6.134 The proposed turbines and the on-site substation would be linked by underground electrical cables, routed along the verges of the internal access tracks. The grid connection point would be determined by the local Distribution Network Operator (Scottish Southern Energy Networks) and would be subject to a separate consenting process led by the network operator and is not included in this assessment.
- 6.135 The Substation compound (90m x 90m) is illustrated indicatively in Figure 3.1a 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.
- 6.136 This compound has been located away from visual receptors. In addition, the colour of the building would be co-ordinated to have a low contrast with the surrounding moorland and forestry landscape, for example dark green.

Operational Mitigation

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

Decommissioning

- 6.138 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 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 ABC.

Residual Landscape Effects

- 6.139 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.”

- 6.140 These effects are assessed by considering the landscape sensitivity (value and susceptibility) against the magnitude of change. The type of effect may also be described as temporary or permanent, direct or indirect, cumulative and positive, neutral, or negative.
- 6.141 The residual landscape effects, assessed here, are those effects remaining after all of the embedded 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 6.3 has been undertaken according to the methodology detailed in Appendix 6.1. The assessment has taken a precautionary approach and focused on the landscape character within 10km. This has been guided by the results of the viewpoint analysis (Technical Appendix 6.2) which indicated that significant visual effects would be limited, primarily to within approximately 6.3km of the proposed turbines.
- 6.142 The effects of the proposed aviation warning lights of the proposed development on the LCTs are considered in Technical Appendix 6.4.

Landscape Effects on Upland Forest Moor Mosaic LCT

- 6.143 The 'host' landscape for the proposed development is the *Upland Forest Moor Mosaic LCT* (number AGC 6 on Figure 6.8 and in the ABLWECS) – a broad area of gently undulating upland plateau with large areas of forestry and occasional narrow settled glens.
- 6.144 The *Upland Forest Moor Mosaic LCT* covers the majority of the landform within 10km of the proposed development and the majority of the central and northern areas of the Kintyre peninsula. The *Upland Forest Moor Mosaic LCT* is flanked by narrow areas of *Rocky Mosaic LCT* along the coastline to the east and west and penetrated by two narrow *Hidden Glens LCT* to the east denoting Carradale Glen, and Saddell Glen. The *Upland Forest Moor Mosaic LCT* is the host of the majority of wind farms within the Study Area. To the south of the host LCT, the upland areas transition to *Rocky Mosaic LCT* and *Bay Farmland LCT*, which form lower lying, more settled areas. A greater diversity of landscape character is identified to the east and northwest in the 45km Study Area on Arran and Islay, and to the northeast on the Isle of Bute.
- 6.145 The landscape character of the *Upland Forest Moor Mosaic LCT* is described within the ABLWECS as follows:
- "The uplands within the Kintyre peninsula generally form a homogenous undulating plateau – generally lower in the middle - with broad gentle slopes and rounded summits. Occasional more craggy slopes and pronounced hills, such as Beinn an Tuirc, Sgreadan Hill and Beinn Bhreac in the south and Cnoc a Bhaile-shois in the north, protrude above forest. Small interlocking knolly hills are a particular feature close to the coastal edge at the transition with Rocky Mosaic (20) and in the arc of hills south of Lussa Loch. The coast between Skipness and Tarbert is steep and rugged with boulder beaches..."*
- A very sparsely settled landscape with isolated farms and houses located on lower hill slopes at the transition with the Rocky Mosaic (20), Hidden Glens (3) and Bay Farmland (14) and within the narrow glens which cut into the edge of these uplands. Operational and consented wind farms are located within this character type. ... Views to this area occur from roads, settlement and ferries from outer Loch Fyne, the Ardlamont Peninsula, Gigha, the west coast of Arran and the Kilbrannan Sound..."*
- 6.146 Within the upland setting, the Site is located on a gentle west facing slopes between Beinn an Tuirc I and Blary Hill Wind Farms. Although within open moorland, the proposed turbines would be flanked by rising landform and surrounding low summits including Beinn an Tuirc Hill (454m AOD) and Cnoc Donn (405m AOD) to the east, Blary Hill (272m AOD) to the west Braid Hill (373m AOD) to the south which has contributed to the limited ZTV coverage of the area as illustrated in Figures 6.2 – 6.4.
- 6.147 The landscape within the Site boundary is fairly typical of the *Upland Forest Moor Mosaic LCT* and displays most of the common key characteristics, in particular the topography and open moorland bounded by coniferous forestry beyond. The Site boundary excludes the characteristics such as the *"edge hills which form immediate skylines prominent from the Rocky Mosaic (20), the Hidden Valley (3) and Bay Farmland (14)"*.

Landscape Sensitivity

- 6.148 The landscape assessment has been undertaken in accordance with GLVIA 3 and the methodology in Appendix 6.1. GLVIA 3, paragraph 5.39 advises that *“Landscape receptors need to be assessed firstly in terms of their sensitivity, combining judgements of their susceptibility to the type of change or development proposed and the value attached to the landscape. ... it is specific to the particular project or development that is being proposed and to the location in question.”*
- 6.149 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”*. It may be noted that this definition is distinct from the one used for strategic assessment in the ABLWECS.
- 6.150 At a strategic level the ABLWECS considers sensitivity to turbines >130m (Very large turbines) within this LCT to be High in relation to the 'Landscape context' due to the narrow width of the Kintyre peninsula and visibility from east and west coasts and from Gigha and Arran, and in relation to 'Visual amenity ' due to the sensitivity of 'edge hills' and views from settled glens and the surrounding open seascape and islands including Arran, Gigha, outer Loch Fyne, Kilbrannan Sound and the West Loch Tarbert area. The ABLWECS considers less sensitivity to turbines >130m in relation to 'Scale' where there would be increased sensitivity to the northern end of the plateau, 'Landform', 'Landscape pattern', 'Built environment', 'Perceptual qualities', and 'landscape values'. The ABLWECS advises that there is *“very limited scope”* for turbines >130m (Very large turbines) within this LCT and that *“Turbines <150m may be able to be accommodated provided that are set well into the centre of the peninsula and occupy more contained sites which would minimise the effects of turbines of this size on the coastal fringes of Kintyre and on views from Aran and Gigha”*. Although it states that many of these sites are already occupied. Since the publication of the ABLWECS in 2017, there have been a number of consented wind farms over 130m within this landscape including Airigh Wind Farm (up to 149.5m to blade tip) in the north of Kintyre and High Constellation and Tangy IV to the south on the Kintyre peninsula (both 149.5m to blade tip). In addition, Clachaig Glen has gained consent with turbines up to 200m within this LCT, and Rowan with turbines up to 200m in the *Knapdale Upland Forest Moor Mosaic* LCT further to the north.

Landscape Susceptibility

- 6.151 In considering the landscape susceptibility for the proposed development this assessment has referred to a range of commonly accepted landscape criteria or indicators of susceptibility to wind energy development, as set out in Table 6.8. They include attributes of large landscape scale, simple landform and land cover, limited settlement and visual qualities of broad and simple skylines, all of which are key characteristics of the *Upland Forest Moor Mosaic* LCT. Other criteria with regard to sensitivity relate to the presence of forestry plantations around the Site and wider area, other wind farm development in this area and the wind-swept nature of the Site.
- 6.152 As a result, an overall assessment has been made of Medium landscape susceptibility for the proposed development.

Table 6.8: Upland Forest Moor Mosaic: 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 e.g. moorland or forestry where the simply landcover may complement turbines			Complex and diverse land cover including a mix of arable fields, grassland, woodland, and water that turbines may dominate.	
	✓				
Pattern	Unenclosed land or large field patterns which may complement the modern aesthetic of turbines.			Irregular small-scale patchwork or medieval field patterns that turbines may overwhelm.	
	✓				
Settlement	Sparse or no settlement with relatively few visual receptors and scale indicators.			Populated areas / lowlands with lots of people and small-scale indicators.	
		✓			
Other Similar Development	Large scale industrial, infrastructure and mineral extraction land uses detracting from the overall landscape sensitivity and value. Landscapes with other wind farms.			Rural / traditional forms of development including parks and gardens and monuments enhancing the overall landscape sensitivity and value.	
		✓			
Perceptual Characteristics:					
Wildness and Naturalness	Area not valued for wildness as a key characteristic or SLQ.			Area valued for wildness as a key characteristic or SLQ.	
		✓			
Remoteness	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 in windswept locations.			Enclosed or sheltered landform likely to be of a smaller scale and limited rational for turbine locations.	

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
		✓			
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

6.153 Considering landscape value, the Site of the proposed turbines is undesignated indicating a Medium value in terms of designation alone. Other factors that contribute and indicate landscape value area listed in GLVIA 3, Box 5.1 and include landscape and scenic quality (indicated by the LLA) rarity, conservation and recreational interests, perceptual aspects such as 'wildness' and associations of history, art or literature. The Site does not exhibit rare landscape features and the Site is not promoted for recreation or crossed by any recreational routes, however the Kintyre Way crosses the LCT approximately 6km to the north of the Site and there are a number of Core Paths between 4km and 8km from the proposed turbines. Despite the lack of designation, the landscape is in a reasonable condition in terms of its representativeness, landscape interest, perceptual and scenic quality, and is considered to be of *Medium* local value.

Overall Sensitivity

6.154 Considering the assessment of Medium susceptibility and the Medium value for the Site of the proposed development, the overall sensitivity of the *Upland Forest Moor Mosaic LCT* to the proposed development is assessed as *Medium*. This is lower than the

sensitivity rating for the ABLWECS and reflects a reduced susceptibility to change in comparison to more sensitive locations such as the edge hills of the LCT.

- 6.155 The landscape elements on the Site, mainly moorland have been assessed as of Medium to Low sensitivity, reflecting its widespread presence and semi-natural nature.

Landscape Effects during Construction

- 6.156 The 18-month construction phase would result in direct landscape effects on the Site and its component landscape elements of moorland vegetation. 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, and localised construction of turbine foundations.
- 6.157 Effects on landscape elements, mainly the moorland vegetation (Medium to 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 (moorland vegetation) would range from **Negligible to Moderate** and would be Not Significant.
- 6.158 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 progressive turbine construction and related infrastructure, including the creation of new access tracks, substation compound and a temporary construction compound. Overall, the landscape effects on the *Upland Forest Moor Mosaic* LCT would range from **None** (at the start of the construction phase) and increase to **Major** and Significant upon completion, due in particular to the nature of construction activity (contrasting colours, movement, people). The geographical extent of significant effects would be limited to areas within the Site itself extending out to approximately 2-3km from the proposed turbines mainly to the north, northwest and northeast (beyond which the theoretical visibility becomes patchy in combination with glens, low hill summits and areas of forestry). There would be no significant effects to the west, southwest, east, south and southeast due to the presence of the existing Blary Hill and Beinn an Tuirc I, II and III wind farms which already have an influence on this part of the LCT. Any potential landscape effects resulting from the proposed development would overlap with these developments and their effects on the existing LCT. Because of the localised nature of this effect and the intervening landform and forestry, the wider *Upland Forest Moor Mosaic* LCT would not be significantly affected in overall terms.

Landscape Effects during Operation

- 6.159 During operation, the completed wind farm would gain a more 'settled' appearance when compared to the same area during construction. 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.
- 6.160 Most of the key characteristics of the *Upland Forest Moor Mosaic* LCT 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 already influenced by the presence of several wind farms, notably the existing Blary Hill, Auchadaduie and Beinn an Tuirc I, II and III wind farms, closest to the proposed development (plus the consented Clachaig Glen Wind Farm to the northwest). The proposed development would however introduce a new development, slightly extending the influence of wind farm development to the north and in views from parts of Barr Glen.

- 6.161 The proposed turbines would be set within the centre of the LCT, set back from Barr Glen and broadly 'contained' between forested upland and surrounding summits, appearing as a simple, large-scale element / wind farm. The turbine blade rotation would be clearly visible. The surrounding low-lying hills would screen the lower parts of the turbines in views from. The surrounding forestry would further screen views within the LCT. This combination of containment and forestry would limit visibility in the surrounding area and the more sensitive edge hills of the *Upland Forest Moor Mosaic* LCT which serve to screen / partially screen the turbines in views from the more sensitive surrounding landscapes including the LLAs along the coastal areas where there is no, or very limited ZTV coverage. The magnitude of change would be High (subject to localised screening from landform and forestry), and the geographical extent would be approximately 2-3km from the proposed turbines mainly to the north, northwest and northeast (beyond which the theoretical visibility becomes patchy in combination with glens, low hill summits and areas of forestry). There would be no significant effects to the west, southwest, east, south and southeast due to the presence of the existing Blary Hill and Beinn an Tuirc I, II and III wind farms which already have an influence on this part of the LCT.
- 6.162 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).
- 6.163 As a result of the Medium sensitivity and the High magnitude of change, the level of effect on part of the *Upland Forest Moor Mosaic* LCT would be **Major** and Significant, extending over a limited area approximately 2-3km from the proposed turbines mainly to the north, northwest and northeast. 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 turbines and their effect on the perceptual qualities of this landscape. There would be no significant effects to the west, southwest, east, south and southeast due to the presence of the existing Blary Hill and Beinn an Tuirc I, II and III wind farms which already have an influence on this part of the LCT.
- 6.164 This level of effect, and geographical extent, is not unusual 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.
- 6.165 It is also noted that the *Upland Forest Moor Mosaic* LCT is characterised as a landscape with wind farm development and the proposed development would be located immediately adjacent to existing wind farms (Bein an Tuirc I, II and III, and Blary Hill). As such the turbines would not be perceived as a new element in the landscape in this

geographical area of the LCT. In addition, the proposed turbines would be set well into the centre of the Kintyre peninsula where they would occupy a more contained site, as recommended for 'Very Large turbines' in the ABLWECS.

- 6.166 Beyond 2-3km, inter-visibility with the turbines becomes patchy due to landform and is restricted by surrounding forestry and the magnitude of change on the remaining areas of this part of the *Upland Forest Moor Mosaic* LCT would reduce to between Medium-Low and Zero leading to a **Moderate to Minor** 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

- 6.167 There are several existing or consented wind farms and clusters within the *Upland Forest Moor Mosaic* LCT. The nearest existing wind farm cluster to the proposed development is the adjacent Beinn an Tuirc I, II and III, Auchadaduie, and Blary Hill. The proposed turbines would sit within this cluster. Although there would be a difference in height with the older turbines, these would be either decommissioned or replaced with larger turbines as part of a repowering process during the lifetime of the proposed development (for example, Beinn an Tuirc I is due to be decommissioned in 2028 but may be extended to 2034, subject to its variation application). The proposed development would be most associated with the wind farm development noted above. There would be locally significant effects on landscape character within 2-3km of the proposed turbines as noted previously. Figure 6.13 indicates that cumulative visibility of Beinn an Tuirc group, Blary Hill and Auchadaduie and the proposed development would be limited to the central and some northwest parts of the LCT.
- 6.168 A further cluster of wind farm development is located to the southwest of the LCT comprising Tangy I and II, and the consented Tangy IV Repower. Other existing wind farms to the north of the LCT are less clustered and include Deucharan Hill, Cour, and Freasdail wind farms. The consented Clachaig Glen would be located to the northwest of the proposed turbines, and High Constellation and Escairt would be located adjacent to Cour and Freasdail respectively. Intervisibility of the proposed development with wind farms between 10-45km would be limited within the LCT as illustrated in Figure 6.16.
- 6.169 The additional cumulative effect of adding the proposed development to the existing and consented wind farm baseline would be reduced by the presence of these wind farms, although still significant (**Moderate**). The nature of these effects would be long-term (reversible), direct, cumulative and negative.
- 6.170 The combined cumulative magnitude would be High, extending to within 2-3km distance from the proposed development, leading to a **Major** and combined significant cumulative effect as a result of Beinn an Tuirc I, II, III, Blary Hill and Auchadaduie and the proposed development. Other wind farms would also have significant effect on this LCT including Clachaig Glen, Tangy I / II / IV Repower and Cour slightly further afield. Unless consent is granted to extend operation, Beinn an Tuirc I would be decommissioned in the same year as the construction phase of the proposed development. Beinn an Tuirc II, III, Blary Hill and Auchadaduie wind farms would be

decommissioned between approximately 16-22 years, reducing this 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

- 6.171 There are three application wind farms within the *Upland Forest Moor Mosaic* LCT. West Torrisdale would be located within the same cluster of wind farms as the proposed development (approximately 1.8km distant) but would be located beyond the containing edge hills to the east. The proposed development would add to this cluster of wind farm development within the LCT.. Killean Wind Farm would be located approximately 6km to the northwest of the proposed development towards the western edge hills whilst Cnoc Buidhe Wind Farm would be located approximately 3km to the southwest of the proposed development towards the western edge hills.
- 6.172 The proposed development would be associated with the cluster of wind farm development within the centre of the LCT where it would be less visible in views from the surrounding landscapes to the west and the east. In contrast, the application wind farms would be located towards the edges of the LCT where they would be more visible from the surrounding landscapes and lower lying areas to the west and east of the LCT as illustrated in Figure 6.17.
- 6.173 The combined or overall cumulative effect would remain significant (**Major**) on part of the *Upland Forest Moor Mosaic* LCT within 2-3km of Beinn an Tuirc I, II, III, Blary Hill and Auchadaduie, West Torrisdale and the proposed development. Significant effects would also arise as a result of Cour, Tangy I, II, IV Repower, Clachaig Glen, Cnoc Buidhe and Killean in separate areas of this LCT. Unless consent is granted to extend operation, Beinn an Tuirc I would be decommissioned in the same year as the construction phase of the proposed development. Beinn an Tuirc II, III, Blary Hill and Auchadaduie wind farms would be decommissioned between approximately 16-22 years, reducing this cumulative effect. The additional cumulative effect of the proposed development would be reduced to **Moderate to Minor** and Not Significant by the presence of other existing and consented development, and the West Torrisdale application (Medium - Low magnitude). The nature of these effects would be temporary to long-term (reversible), cumulative, direct and negative.
- 6.174 The probability of these effects occurring would range from certain (in terms of existing development) to uncertain (in respect of wind farm development at application stage).

Landscape Effects During Decommissioning

- 6.175 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 **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.

Indirect Effects on the Surrounding Landscape Character

- 6.176 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.
- 6.177 In summary, none of the other LCTs would be significantly affected in terms of their landscape character, although there would be significant effects on the views from small parts of these areas.

Table 6.9 Indirect Effects on Surrounding Landscape Character

Landscape Character Type	Assessment
LCTs within 10km	
Rocky Mosaic LCT (20)	The Rocky Mosaic LCT comprises three units within 10km of the proposed turbines: ▪ Unit A: West coastline ▪ Unit B: Carradale ▪ Unit C: South of Saddell The key characteristics of this LCT is described as: ▪ <i>"Uneven, hummocky landform with rocky outcrops and narrow glens.</i> ▪ <i>Raised beaches, cliffs and distinctive rounded knolls.</i> ▪ <i>Rocky, indented coastline with offshore islands and small sandy bays.</i> ▪ <i>Relatively small-scale landscape with a diverse mix of colours and textures.</i> ▪ <i>Steep wooded cliffs and hummocky, gorse-covered slopes.</i> ▪ <i>Stone walls provide partial enclosure.</i> ▪ <i>Relatively well-settled, with scattered isolated farm buildings and small villages in sheltered sites.</i> ▪ <i>A wide variety of archaeological sites.</i> ▪ <i>Complex transitional landscape."</i> The ABLWECS considered the sensitivity to very large wind farm development <i>within</i> the LCT to be High, this however is distinct from the sensitivity assessed for the proposed development which is <i>outwith</i> the LCT. The LCT often hosts the main routes through the landscape, and as it creates the transition from land to sea, plays a key role in the scenic value of the coastal views. All of the units are overlapped or partly overlapped by locally designated LLAs: Unit A is partly overlapped by the West Kintyre (Coast) LLA along its western edge; Units B and C are located within the East Kintyre (Coast) LLA (High-Medium value). Where there is no LLA overlap, the value is considered to be Medium. The skylines viewed from these areas tend to be contained by the Upland Forest Moor Mosaic which acts to enclose this landscape. The susceptibility to change from the introduction of the proposed development is assessed as Medium because of the location of the wind farm in a different LCT located inland. The overall sensitivity is therefore

Landscape Character Type	Assessment
	considered to be <i>High-Medium</i> due to their LLA designation. Although where the Unit is not overlapped by the LLA (notably Unit A at Glenbarr), the susceptibility to change is assessed as Medium, and the overall sensitivity is considered to be reduced (Medium). <u>Assessment: proposed development</u> None of the proposed turbines would be located within this LCT (the nearest would be approximately 3.6km distance to the east of Unit A). <u>Unit A – West coastline</u> The ZTV coverage within this unit is limited with theoretical visibility indicated on Barr Glen and elevated areas to the immediate north and south of the settlement of Glenbarr. Visibility from these locations are illustrated in Viewpoint 2, Figure 6.20, and Viewpoint 3, Figure 6.21 where the proposed development would be visible on the skyline of the view with the majority of the lower towers screened by intervening landform and seen beyond the existing Blary Hill and Auchadaduie wind farms. From within this unit, the association with the upland landscapes is secondary compared to the association with the expansive seaward / coastal context and there are fewer of the key characteristics of the LCT along Barr Glen as it transitions to the <i>Upland Forest Floor Mosaic</i> LCT. The effects on the key characteristics and features of this unit would not be significant, and the proposed developments' location on an upland landscape beyond an inland glen would have a limited characterising influence on the LCT. The magnitude of change on this landscape unit would be Medium-Low (with large areas of Zero magnitude). This would be in part of the LCT that is not overlapped by the LLA and therefore has a lower (Medium) sensitivity. The level of effect 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 large scale wind farms located within the <i>Rocky Mosaic</i> LCT, although the proposed development would be visible beyond the existing Blary Hill and Auchadaduie wind farms which appear at a similar size and scale as the proposed turbines and have a slightly greater influence on this LCT (Medium / Medium-Low to Zero magnitude). The Beinn an Tuirc cluster would have a limited influence on this LCT (Very Low to Zero magnitude). In other views, the proposed development would be intervisible with the existing Tangy Wind Farm turbines and the consented Tangy IV Repower to the south viewing inland from the coastline, however, these would have a slightly greater influence on the LCT (both Medium / Medium-Low to Zero magnitude). Clachaig Glen would also have some influence on this LCT (Medium / Medium-Low to Zero magnitude). The additional effect of the proposed development would lead to a Low magnitude (reduced due to the presence of other wind farms) and a Minor to None and Not Significant effect. The combined effect of the proposed development would lead to a Medium / Medium-Low to Zero magnitude and a Moderate to None and Not Significant effect due to other existing and consented wind farms. 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 other application wind farms within this LCT although Cnoc Buidhe and Killeen would have a slightly greater influence on the LCT (both Medium / Medium-Low to Zero magnitude). The additional effect of the proposed development would lead to a Very Low magnitude (reduced due to the presence of other wind farms) and a Negligible to None and Not Significant effect. The combined effect of the proposed development would lead to a Medium / Medium-Low to Zero magnitude and a Moderate to None and Not Significant effect due to other wind farms. The nature of these effects would be long-term (reversible), cumulative, indirect and negative. <u>Unit B – Carradale</u>

Landscape Character Type	Assessment
	The ZTV coverage within this unit is very limited with theoretical visibility indicated at Carradale Point where there would be visibility of partial blades / blade tips as illustrated in Viewpoint 7, Figure 6.25. From this location within the unit, the association with the upland landscapes is secondary compared to the association with the expansive seaward / coastal context which is visible to the west, south, east and northeast. Although partially visible on the skyline across Carradale Bay, the proposed development appears beyond the transitional areas of this rocky coastline between the upland landscapes of the unit and beyond the edge hills forming the skyline. The effects on the key characteristics and features of this unit would not be significant, it would not be incongruous due to the visibility of existing windfarms at Beinn an Tuirc. There would be no visibility from the remainder of this unit. The magnitude of change on this landscape unit would range from Very Low to Zero and the level of effect would be Minor to Negligible, to None and Not Significant. The nature of these effects would be long-term (reversible), indirect and negative to neutral. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> The Beinn an Tuirc cluster would have limited influence on this LCT (Low-Very Low to Zero magnitude). To the north, High Constellation would be theoretically partly visible in a glimpsed view (Very Low magnitude). The additional effect of the proposed development would lead to a Very Low magnitude and a Minor to Negligible, to None and Not Significant effect. The combined effect of the proposed development would also lead to a Low-Very Low to Zero magnitude and a Minor to None and Not Significant effect with most of the effect resulting from the visibility of the Beinn an Tuirc development. The nature of these effects would be long-term (reversible), cumulative, indirect and negative to neutral. <u>Cumulative Assessment: Existing + Consented + Applications + proposed development</u> The application West Torrisdale Wind Farm would have a greater influence on Unit B of this LCT (Medium / Medium-Low to Zero magnitude) due to its proximity and limited landform screening. The additional effect of the proposed development would be reduced to Negligible to None and Not Significant. The combined landscape effect would increase to Moderate to None and Not Significant, affecting the northern part of this LCT due to the West Torrisdale. The nature of these effects would be long-term (reversible), cumulative, indirect, and negative. <u>Unit C – South of Saddell</u> There is no ZTV coverage within this unit and No Effect.
LCTs beyond 10km within North Arran NSA	
Arran Raised Beach Coast LCT (1b) (59 NS)	The Arran Raised Beach Coast LCT is located approximately 12.3km from the Proposed Development across the Kilbrannan Sound. The LCT comprises a narrow, margin along parts of the coast of mainland Ayrshire and Arran. Within the Study area units of this LCT are located to the north, west and east of north Arran. NS notes the following in relation to the key characteristics of this LCT (LCT 59): ■ “Raised beach, visible as a level shelf backed by a steep, sometimes craggy escarpment representing the former cliff line, above which lies more gently rising land. ■ Rocky coastline, sometimes with cliffs, with narrow sand and shingle beaches, and mud flats in estuarine locations. ■ Varied land uses but mainly farmed; the raised beaches also provide a level terrace for settlement and communication. ■ Large parts of the former cliff line are also characterised by dense, often wind sheared broadleaf woodland. ■ A number of hillforts, promontory forts, mottes and castles reflecting the strategic importance of this coastal landscape.

Landscape Character Type	Assessment
	■ <i>Small, historic settlements sit comfortably against the steep former cliff line and use building materials which reflect the local geology.</i> ■ <i>Some modern growth has taken the form of ribbon development and includes caravan parks and holiday development; tall structures such as masts are relatively few.</i> ■ <i>Landscape of visual drama and contrast with a strong sense of seclusion, and where less accessible a strong sense of remoteness.</i> ■ <i>Views tend to be longer distance and focussed seaward."</i> The North Ayrshire Supplementary Landscape Wind Capacity Study (NASLWCS) considered the sensitivity to large wind farm development <i>within</i> the LCT to be High. This however is distinct from the sensitivity assessed for the proposed development which is <i>outwith</i> the LCT and geographically and physically separated by the Kilbrannan Sound. The <i>Arran Raised Beach Coast</i> LCT is located within the North Arran NSA and the North Arran SLA. Therefore, a High value is assessed. The susceptibility to change from the introduction of the proposed development is Low due to the physical and geographical separation. It is not possible for the proposed development to affect the physical characteristics of the LCT. 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 this LCT (the nearest turbine would be approximately 12.3km distance to the west). Although the majority of the LCT is covered by the ZTV, only partial visibility of between one and six proposed turbines are indicated across the majority of the LCT with increased theoretical visibility indicated in elevated transitional areas to the east of the LCT. Views from this area are illustrated in Viewpoint 9, Figure 6.27 where a partial blade and blade tip would be theoretically visible (Very Low visual magnitude). From elevated transitional areas visibility would increase to two hubs and partial blades and tips (Very Low magnitude). The effects on the key characteristics and features of this LCT would not be significant, with the proposed development adding a further windfarm to this contemporary, although simple landscape. The addition of turbines and slow turbine rotation would not appear incongruous due to the influence of existing wind farms along the central Kintyre spine. The magnitude of change on the landscape character from the introduction of the proposed development would be Very Low, resulting in a Minor to None and Not Significant effect. The nature of these effects would be long-term (reversible), indirect and negative to neutral. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Existing and consented wind farms located on the spine of the Kintyre peninsula on the skyline of the view west include Beinn an Tuirc I, II and III slightly overlapping with the proposed development, Deucheran Hil, Cour and the consented High Constellation – all of which would have a limited influence on this LCT (all Very Low to Very Low magnitude). The additional effect of the proposed development would be reduced to Negligible to None and Not Significant due to the presence of other wind farms. The combined effect would be Minor to None and Not Significant. The nature of these effects would be long-term (reversible), cumulative, indirect and negative to neutral. <u>Cumulative Assessment: Existing + Consented + Applications + proposed development</u> There are three application wind farms visible from the LCT. West Torrisdale Wind Farm would be visible to the west (Low to Zero magnitude), Breackerie would be visible to the southwest (Very Low to Zero magnitude) and Killean would be partially visible to the northwest (Very Low to Zero magnitude). The additional effect of the proposed development would be reduced to Negligible to None and Not Significant due to the presence of other wind farms. The combined effect would be Moderate to Minor, to None and Not Significant. The nature of these

Landscape Character Type	Assessment
	effects would be long-term (reversible), cumulative, indirect and negative to neutral.
Arran Rugged Granitic Uplands LCT (21b) (83 NS)	The <i>Arran Rugged Granitic Uplands</i> LCT comprises large, elevated and complex mountain ranges. Landcover is dominated by heather moorland, rough grassland and areas of exposed rock outcrops. The NASLWCS did not include this area as an 'Area of Search' since there 'is no scope for development within landscape character types concluded to have a High overall sensitivity'. The NS description of the area (LCT 83 Rugged Upland) notes the following in relation to the North Arran unit of this LCT: <i>"The mountains of North Arran represent the remains of a major granite intrusion. ... The hills can be sub-divided into two groups. The first comprises the dramatic eastern peaks, including Goat Fell, Caisteal Abhail and Beinn Tarsuinn which are linked by a heavily serrated and knife edge ridge. The second comprises the more rounded western summits of Beinn Bharrain, Mullach Buidhe, Beinn Bhreac and Beinn Tarsuinn. The entire mountain range has been significantly modified by glacial erosion, both as a consequence of inundation by the main Highland ice sheets and the accumulation of local ice deposits. The result is a highly dissected landform, with the high peaks separated by plunging U-shaped valleys such as Glen Iorsa, Glen Sannox and Glen Rosa. The depth of these valleys, and the proximity of the hills to the coast creates a drama which, in Scotland at least, can only be experienced on other islands such as Skye and Mull."</i> The NASLWCS considered the sensitivity to be <i>High</i>. This however is distinct from the sensitivity assessed for the proposed development which is outwith the LCT. The <i>Arran Rugged Granitic Uplands</i> LCT is located within the North Arran NSA and the North Arran SLA. Therefore, a High value is assessed. The susceptibility to change from the introduction of the proposed development is Low due to the physical and geographical separation across the Kilbrannan Sound comprise the Kintyre upland spine although further islands including Gigha, Isla and Jura are visible beyond. Existing wind farm development along the upland spine of Kintyre already has some influence on this LCT. 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 this LCT (the nearest turbine would be approximately 13.3km distance to the southwest). ZTV coverage is patchy within the LCT with theoretical visibility indicated on several summits, the west facing slopes to the west of the LCT (west of Mullach Buidhe and Roileag), and to the east and south of the steep valley sides at Glen Iorsa. The proposed turbines would be seen across the Kilbrannan Sound on the Kintyre upland spine as illustrated in Viewpoint 12, Figure 6.30 which illustrates the view from Mullach Buidhe. The view in other directions would be unaffected by the proposed development. The proposed turbines would appear in another part of the landscape separated by the Kilbrannan Sound that is already influenced by wind farm development. As such the proposed development would have no direct effect on the geology or features of the <i>Arran Rugged Granitic Uplands</i> LCT and would not be an incongruous feature in this part of the view. The magnitude of change on the landscape character from the introduction of the proposed development would range from Very Low to Zero, 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 to neutral. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> There would be several existing and consented wind farms visible along the Kintyre peninsula including Beinn an Tuirc and Tangy, Blary Hill and Auchadaduie turbines (all Very Low magnitude). Cour, Freasdail, allt Dearg and Sronddoire (all Very Low magnitude). High Constellation would be visible to the northwest (Very Low magnitude). Clachaig Glen would be partially visible (Very Low magnitude). All these wind farms would have a limited influence on this LCT. The additional effect

Landscape Character Type	Assessment
	of the proposed development would be reduced to Negligible to None and Not Significant due to the presence of other wind farms. The combined effect would be Minor to None and Not Significant. The nature of these effects would be long-term (reversible), cumulative, indirect and negative to neutral. <u>Cumulative Assessment: Existing + Consented + Applications + proposed development</u> West Torrisdale Wind Farm would be visible to the west (Low magnitude), Killean would be partially visible to the northwest (Very Low magnitude), Cnoc Buidhe would be partly visible behind West Torrisdale (Very Low magnitude), and Breackerie would be visible to the southwest (Very Low magnitude). The additional effect of the proposed development would be reduced to Negligible to None and Not Significant due to the presence of other wind farms. The combined effect would be Moderate to Minor, to None and Not Significant. The nature of these effects would be long-term (reversible), cumulative, indirect and negative to neutral.
Coastal Lowland Moor LCT (6) (65 NS)	The <i>Coastal Lowland Moor</i> LCT stretches inland from the central western coast to the south of Beinn Bharrair and Beinn Tharsuinn roughly following the course of Machrie Water. The NS description of the area (LCT 65 Rugged Upland) identifies the following key characteristics: ■ <i>Extensive area of lowland, partially enclosed by rising hills to the north and east, and the low coastal hills to the west.</i> ■ <i>Underlying geology is a mix of sedimentary formations including old red sandstones and mudstones.</i> ■ <i>Areas of rough grazing, with other parts subject to enclosure, creating a tight network of geometric fields.</i> ■ <i>A dispersed scatter of houses and farms, mostly traditional stone farmhouses and cottages.</i> ■ <i>Number of isolated cul-de-sac developments of modern suburban houses which contrast strongly with the surrounding pattern of land use and settlement.</i> ■ <i>A large number of prehistoric remains including standing stones, stone circles and cairns.</i> ■ <i>Views tend to be focused along the valley and enclosed by the surrounding higher ground. Longer distance, glimpsed views of the Kilbrannan Sound and Kintyre to the west often available."</i> The <i>Coastal Lowland Moor</i> LCT is located within the North Arran NSA and the North Arran SLA. Therefore, a High value is assessed. The susceptibility to change from the introduction of the proposed development is Low due to the physical and geographical separation. It is not possible for the proposed development to affect the physical characteristics of the LCT. The glimpsed skylines viewed from this area across the Kilbrannan Sound comprise the Kintyre upland spine. Existing wind farm development along the upland spine of Kintyre already has some influence on this LCT. 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 this LCT (the nearest turbine would be approximately 15.1km distance to the northwest). ZTV coverage is limited within the LCT with theoretical visibility indicated to the west of the LCT between the coastline and the boundary at Dereneneach where visibility of up to six turbines is indicated. In reality views from within this area would be screened or filtered by intervening scrub woodland and field boundary planting – particularly from the inland areas with the greatest concentration of prehistoric remains. The greatest visibility would be from the coastal areas and hinterland. From these areas the proposed turbines would be theoretically visible

Landscape Character Type	Assessment
	across the Kilbrannan Sound on the Kintyre upland spine and would appear as a hub and as partial blades and blade tips. The magnitude of change on the landscape character from the introduction of the proposed development would range from Very Low to Zero, 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 to neutral. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> There would be several existing and consented wind farms visible along the Kintyre peninsula including Beinn an Tuirc, Deucheran Hill, and Cour and the consented High Constellation (all Very Low to Zero magnitude). The additional effect of the proposed development would be reduced to Negligible to None and Not Significant due to the presence of other wind farms. The combined effect would be Minor to None and Not Significant. The nature of these effects would be long-term (reversible), cumulative, indirect and negative to neutral. <u>Cumulative Assessment: Existing + Consented + Applications + proposed development</u> West Torrisdale Wind Farm would be visible to the northwest (Low – Very Low magnitude), Killean would be partially visible to the northwest (Very Low magnitude), and Breackerie would be visible to the southwest (Very Low magnitude). The additional effect of the proposed development would be reduced to Negligible to None and Not Significant due to the presence of other wind farms. The combined effect would be Minor to None and Not Significant. The nature of these effects would be long-term (reversible), cumulative, indirect and negative to neutral.
Coastal Headlands LCT (4a) (62 NS)	The Coastal Headlands LCT within the NSA is located to the northeast of Arran. The NS description of the area (LCT 62 Coastal Headlands) identifies the following key characteristics: ▪ Distinctive headland, consisting of hills with bluff almost craggy summits, flanked seawards by raised beaches. ▪ Varied geology formed by igneous rocks and a combination of sandstones, carboniferous rocks and lavas. ▪ Sheltered slopes consist of pastures enclosed by hedgerows, with rough grazing on exposed slopes and gorse and outgrown field boundary trees on summits. ▪ Semi-natural woodland is found on some of the more sheltered slopes with some areas of coniferous woodland also present. ▪ Settlement quite sparse and limited to small settlements, single houses and farmsteads on lower slopes. ▪ Sites for communications infrastructure, including a number of masts. ▪ Exposed, open and highly visible landscape, with panoramic views over the coastal edge and Firth of Clyde. The Coastal Headlands LCT is located within the North Arran NSA and the North Arran SLA. Therefore, a High value is assessed. The susceptibility to change from the introduction of the proposed development is Low due to the physical and geographical separation. It is not possible for the proposed development to affect the physical characteristics of the LCT. The skylines viewed from this area across the Kilbrannan Sound comprise the Kintyre upland spine where existing wind farm development already has some influence on this LCT. The overall sensitivity is considered to be <i>High-Medium</i>. <u>Assessment: proposed development</u> None of the proposed turbines would be located within this LCT (the nearest turbine would be approximately 23km distance to the northwest).

Landscape Character Type	Assessment
	ZTV coverage is limited within the LCT with theoretical visibility indicated to the western hills Conc nan Sgarth (272m AOD) and Torr Meadhonach (332m AOD). The proposed turbines would be visible across the Kilbrannan Sound on the Kintyre upland spine and would appear as two hubs and partial blades and blade tips. The magnitude of change on the landscape character from the introduction of the proposed development would range from Very Low to Zero, and the level of effect would be Minor to Negligible, to None and Not Significant. The nature of these effects would be long-term (reversible), indirect and negative to neutral. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> There would be several existing and consented wind farms visible along the Kintyre peninsula including Beinn an Tuirc, Cour, and Deucheran Hill, in the same views as the proposed turbines (all very Low magnitude), the consented High Constellation and Escart and existing Freasdale wind farms would be visible at closer distances (all Very Low magnitude). Other wind farms would be partly visible or visible at greater distances and would not result in Significant effects. The additional effect of the proposed development would be reduced to Negligible to None and Not Significant due to the presence of other wind farms. The combined effect would be Minor to Negligible, to None and Not Significant. The nature of these effects would be long-term (reversible), cumulative, indirect and negative to neutral. <u>Cumulative Assessment: Existing + Consented + Applications + proposed development</u> Killeean would be partially visible to the southwest (Very Low magnitude). West Torrisdale would be partly visible to the southwest (Very Low magnitude). The additional effect of the proposed development would be reduced to Negligible to None and Not Significant due to the presence of other wind farms. The combined effect would be Minor to Negligible, to None and Not Significant. The nature of these effects would be long-term (reversible), cumulative, indirect and negative to neutral.

Effects on Landscape Planning Designations

- 6.178 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. 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.
- 6.179 As set out in the baseline and as agreed during consultation, the indirect effects on one NSA and one SLA are included in the assessment – the North Arran NSA and SLA. The SLA largely overlaps with the NSA boundary as illustrated in Figure 6.9. Since there is no document which describes the 'SLQs' of the SLAs within North Ayrshire, the assessment of the North Arran SLA is assumed to combine with the SLQs of the NSA and therefore the assessment of the NSA is considered to encapsulate the assessment of the SLA.
- 6.180 As agreed with NS during consultation, effects on the WLQs of the North Arran WLA have been scoped out of the assessment.
- 6.181 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."*

6.182 The effects of the proposed development on the SLQs have been assessed in accordance with the methodology set out in Appendix 6.1 and with the NS Guidance on *Special Landscape Qualities – Guidance on Assessing Effects* (January 2025).

6.183 A full night-time assessment of the aviation warning lights is provided in Technical Appendix 6.4.

6.184 In summary, none of the landscape planning designations within the Study Area including the SLQs of the North Arran NSA and SLA would be significantly affected by the proposed development.

North Arran NSA

6.185 North Arran NSA is located approximately 11.3km east / northeast of the proposed development at its closest point within the Kilbrannan Sound. The Arran coastline at Imachar within the NSA is located approximately 12.3km east of the proposed development. Figures 6.9b/c illustrate the blade tip and hub height visibility of the proposed development from within the NSA. Viewpoints 9 and 12 are located within the NSA. A number of additional viewpoint wirelines from within the NSA are included in Appendix 6.5.

6.186 The NSA assessment comprises four steps:

- *Step 1: Review and describe the proposal;*
- *Step 2: Identify the SLQs that may be affected by the proposal - through an interrogation of relevant information and experience through site visits, identification of the study area within the NSA, and an assessment of the sensitivity of the identified SLQs (grouping SLQ's where appropriate);*
- *Step 3: Assessment of effects on SLQs and design objectives including (embedded) mitigation, magnitude of change derived from ZTV's visualisations, photomontages, night assessment, and any further mitigation; and*
- *Step 4: Summary of significant effects on SLQs.*

Step 1: Review and describe the proposal

6.187 The proposed development is not located within the North Arran NSA and comprises nine wind turbines located along the central upland spine of the Kintyre peninsula. The

proposed turbines include four turbines (T1, T2, T3, and T4) up to a maximum blade tip height of 200m and five turbines (T5, T6, T7, T8 and T9) up to a maximum blade tip height of 230m with associated infrastructure, and aviation warning lights on T1, T2, T5 and T8. Infrastructure associated with the proposed development includes one site entrance (two options (Northern and Southern Routes) via the minor Barr Glen road from the A83), internal access tracks and hardstanding areas, crane pads, one temporary construction compound 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.

- 6.188 The NSA boundary, which includes the western extent of Kilbrannan Sound, is located approximately 11.3 km from the nearest proposed turbine.
- 6.189 Effects are considered to arise mainly from the introduction of the proposed wind turbines, including visible aviation lighting (as detailed in Appendix 6.4). Effects arising from the introduction of access tracks and other infrastructure are unlikely to form discernible features in views from the North Arran NSA.
- 6.190 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 by the proposal

Step 2a: Relevant information

- 6.191 The North Arran NSA boundary is illustrated in Figures 6.9b/c 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 of 11.3km in the Kilbrannan Sound, to 12.3km to the Arran coastline (at Imachar), and 26.5km to the summits northeast of Goatfell. The NSA is described in the SNH description from Scotland's Scenic Heritage 1978 as follows:

"The island of Arran makes a major contribution to the wider landscape character of the Firth of Clyde, its highland mountains being particularly outstanding in a southern setting, and adding greatly to scenic enjoyment of Bute, Ayrshire and Kintyre. On the island itself, however, it is the northern part which is scenically outstanding. Here the older Highland rocks and a massive granite dome have been fashioned into a deeply dissected highland massif with rugged peaks rising to nearly 900 metres, separated by deep glens.

These mountains fill the whole centre of the island and there is only a narrow coastal plain before the boulder-strewn slopes sweep upward to the shapely serrated peaks like Goat Fell (874m) and Cir Mhor (798m). The coastline has raised beaches on which typical clachan settlements have developed, and where the mild climate permits the growth of luxuriant vegetation, best exemplified in the gardens of Brodick Castle (National Trust for Scotland). If the island contributes to all its neighbouring districts by its dramatic presence,

it must also be said that views from it to Bute, Cowal and Kintyre also add to the quality of the scene in Arran."

(Scotland's Scenic Heritage, Countryside Commission for Scotland, 1978.)

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

- *"A mountain presence that dominates the Firth of Clyde;*
- *The contrast between the wild highland interior and the populated coastal strip;*
- *The historical landscape in miniature;*
- *A dramatic, compact mountain area;*
- *A distinctive coastline with a rich variety of forms;*
- *One of the most important geological areas in Britain;*
- *An exceptional area for outdoor recreation;*
- *The experience of highland and island wildlife at close hand."*

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

6.193 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 occasional residential properties and extensive wind farm development that is visible from several locations in the hills (in particular, on the Kintyre Peninsula) beyond the NSA boundary.

6.194 The landscape character of the landscape within the NSA is identified in Figure 6.7. 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

6.195 Up to 10 viewpoints and interconnected routes have been examined on site with the aid of ZTV maps and wirelines. Some of these viewpoints include locations at Pirnmill, Imachar, Thundergay, Catacol, Whitefarland, Machrie, Coire Fhionn Lochan, Mullach Buidhe, Beinn Tarsuinn and Goatfell. In addition, assessment viewpoints agreed with NS and ABC include two that are listed within the NSA as Viewpoint 9: Imachar and Viewpoint 12: Mullach Buidhe (Beinn Bharainn). The site visits were undertaken on several occasions between June 2024 and March 2025.



Plate 1: Machrie, looking across the Kilbrannan Sound and to North Arran



Plate 2: Looking towards North Arran Mountains

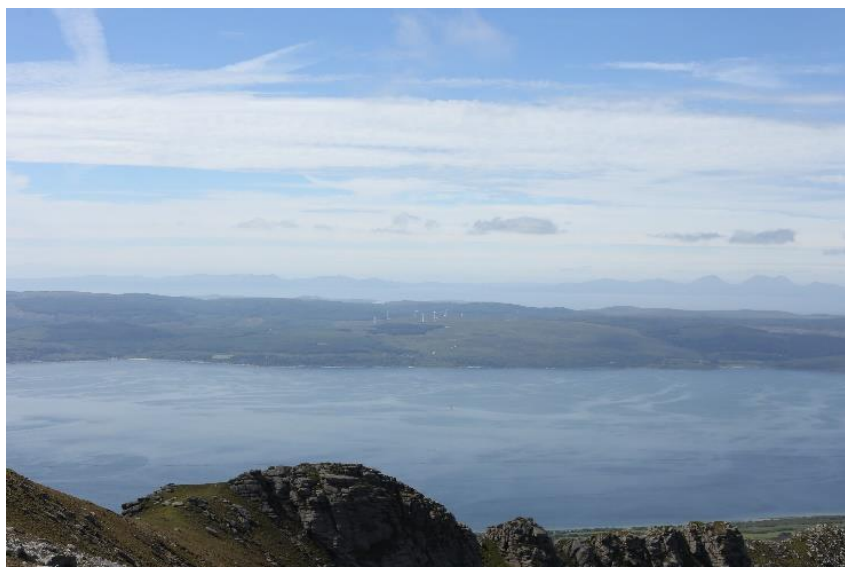


Plate 3: View from Mullach Buidhe towards the Kintyre peninsula with wind turbines featuring in these views.



Plate 4: View from Beinn Tharsuinn looking towards the Core Area of the North Arran NSA (Goatfell in the middle)



Plate 5: View across Lochranza Bay with distant views of Kintyre



Plate 6: View from Machrie looking across the Kilbrannan Sound to Kintyre

6.196 As noted above, there are eight SLQs associated with North Arran 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.

6.197 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 6.9 above). In summary, the ZTV shown on Figures 6.9b/c indicates potential theoretical visibility across four LCTs (Figure 6.7) within the NSA as follows:

- Raised Beach Coast and Cliffs LCT (59) - theoretical visibility of up to six turbines is indicated within 12.3km (at the closest point) across the majority of the LCT;
- Coastal Headlands (62) - theoretical visibility is indicated for all turbines within approximately 23km from limited elevated high points in the western part of the LCT including Torr Meadhonach (332m AOD);
- Coastal Lowland Moor (65) - theoretical visibility is indicated for up to six within approximately 15.1km from much of the western part of the LCT from Drumadoon Point in the south to Machrie Bay in the north; and
- Rugged Uplands – Ayrshire (83) - theoretical visibility is indicated for all turbines within approximately 13.3km from some western parts including summits and some limited facing slopes in the central area of the LCT.

6.198 The assessment of effects on landscape character concludes no significant effects on the key characteristics of these LCTs or potential for future cumulative effects given the physical separation of these landscapes by Kilbrannan Sound.

6.199 As noted above, two viewpoints are 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 9: Imachar, Arran – Negligible and Not Significant; and
- Viewpoint 12: Mullach Buidhe (Beinn Bharrain) – Moderate to Minor and Not Significant.

6.200 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.

Table 6.10 North Arran NSA initial review of SLQs

SLQ	Included / Excluded	Justification
SLQ 1: A mountain presence that dominates the Firth of Clyde.	X	The proposed development would be located on the central upland spine of the Kintyre peninsula where it would be partially screened by low hills in views from North Ayrshire and Bute. The location of the proposed development also results in few locations where the proposed turbines would be seen within views towards Arran and the NSA. Similarly, there are very few locations from the east coast of the Kintyre peninsula from which the proposed development would be visible. From the very limited locations where this could potentially occur, the proposed development would be a small background feature which would not influence

SLQ	Included / Excluded	Justification
		the appreciation of this SLQ (as illustrated in Viewpoints 18 and 20, Figures 6.36 and 6.38).
<i>SLQ 2: The contrast between the wild highland interior and the populated coastal strip.</i>	X	The experience of the proposed development would be located outwith the NSA, on the mainland (Kintyre peninsula) across the Kilbrannan Sound and as such would not affect an appreciation of the changing geology and landcover between the settled coast and unpopulated upland landscapes of the interior of the North Arran NSA.
<i>SLQ 3: The historical landscape in miniature.</i>	X	The proposed development is located outwith the NSA and would not result in the loss of any historic features or influence appreciation of the layers of historic land use.
<i>SLQ 4: A dramatic, compact mountain area.</i>	X	The proposed development would be located outwith the NSA and would therefore not alter the physical topography of the North Arran landscape. The experience of the North Arran mountains from the surrounding lowlands and coast and on the approach to Brodick from the mainland would not be altered by the introduction of the proposed development. Although the proposed development would be visible from limited low-lying coastal locations and some areas of elevated slopes and summits of the Arran mountains, it would be seen in the context of other existing wind farms on the Kintyre peninsula. Outward views experienced from the mountains are assessed as part of SLQ 7.
<i>SLQ 5: A distinctive coastline with a rich variety of forms.</i>	X	The proposed development would have no physical effect on the composition of North Arran coastline. The proposed turbines would be located on the central upland spine of the Kintyre peninsula, separated from the NSA by the Kilbrannan Sound. Although the proposed turbines would be partially visible (up to three blade tips and one occasional hub) from sections of the western coast, as illustrated in Viewpoint 9, Figure 6.27 (Very Low magnitude) and Viewpoint A, Figure 6.5.A in Appendix 6.5 (Low-Very Low magnitude), they would be viewed in the context of other more notable wind farms on a developed skyline. There would be very limited visibility of the proposed development on the Kintyre skyline, as illustrated, such that it would not intrude upon the wider appreciation of coastline and backdrop qualities in views which contribute to the experience of SLQs within the NSA. The limited extent of visibility of the proposed development when viewed across the open water from the western coast is largely due to the siting of the turbines beyond the low hills on Eastern Kintyre which provide most of the screening. The proposed turbines do not compete with views of the distinctive and varied coastal character impacting on the appreciation and enjoyment of the NSA from the western coast.

SLQ	Included / Excluded	Justification
		The experience of remoteness or seclusion, in which coastal views and “distant views over the sea” to Kintyre would be largely unaffected by the proposed development.
SLQ 6: One of the most important geological areas in Britain.	X	The proposed development would be located outwith the NSA and would therefore not alter the physical geology of the North Arran landscape.
SLQ 7: An exceptional area for outdoor recreation.	✓	The proposed development would not influence access to outdoor recreation but would be visible by recreational receptors from the summits and slopes of the less popular western mountains (and summits of central Arran such as Goatfell located over 25km distance) and as such has some potential to affect this SLQ.
SLQ 10: The experience of highland and island wildlife at close hand.	X	The introduction of the proposed development would not affect an appreciation of the unique flora and fauna of the Isle of Arran.

Step 2c: Identify the study area

- 6.201 Taking into account the nature of the included SLQ and its focus on the experience of recreational activity within the NSA, the study area considers the NSA as a whole, however, there would be no visibility of the proposed development beyond 26.5km distance from within the NSA. Therefore, the study area is limited to 11.3 – 26.5km. Particular focus in the assessment is centred on the experience of recreational users in their views west towards the proposed turbines. ZTV analysis indicates that potential views towards the proposed development is more prevalent on western hill summits and facing slopes. and some limited visibility along the western coast of the NSA, with some potential visibility indicated along Glen Iorsa towards the centre of the NSA. Although recreational activity would be very limited along the steep slopes overlapped by the ZTV to the south of the Iorsa Glen, the rounded western hill summits forming ‘horseshoe’ formations at Mullach Buidhe (721m AOD), Beinn Bhreac (711m AOD) and Casteal na h-Iolaire (717m AOD) are destinations for recreational walkers – albeit less popular than Goatfell. The Arran Coastal Way is also a recreational route experienced by walkers and in places by road users.
- 6.202 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 33% of the entire North Arran NSA (67% outwith ZTV); and
 - Total ZTV (to hub height) coverage accounts for 26.7% of the entire North Arran NSA (73.3% outwith ZTV).
- 6.203 The assessment has also taken account of how the area is perceived and used by people and the following recreational viewpoints and routes within the ZTVs have been noted in the assessment:

- Views experienced from the A841 and Arran Coastal Way;
- Views from the western coast at small settlements including visitor car parks for access to the shores at Pirnmill, Catacol, Imachar and Machrie;
- Views from elevated areas and summits in the north-west including Mullach Buidhe and Coire Fhionn Lochan which are accessed via Core Paths from the A841;
- Views from the Arran Corbetts including Goatfell, Caisteal Abhail, Beinn Tarsuinn and Cir Mhor;
- Views from the Cock of Arran;
- Small number of water based users on the Kilbrannan Sound;
- Views from the less travelled northern ferry routes;
- Views from Lochranza, Newton Point, the main Ardrossan – Brodick ferry route, Catacol, Imachar, Brodick and Lochranza Castles, Brodick Bay, Dougarie and Mid Sannox designed landscapes, and Boguillie would have No View of the proposed development.

6.204 In practice, many of the western coastal locations are partly screened (wholly screened in the north) by intervening landform and vegetation, whilst open views are confined to elevated areas and summits away from the coastline and are often experienced as wide panoramic views typically 360° and viewing over long distances.

Step 2d: Assess the sensitivity of the key SLQs to the proposal – SLQ 7

- 6.205 The identified SLQ (SLQ 7: *An exceptional area for outdoor recreation*) is focused on outdoor recreation. A key component of this is the experience of views to the surrounding landscapes / seascapes and features both within and outwith the NSA.
- 6.206 The SNH Commissioned Report No.374, 2010 further describes this special quality as follows (WSP emphasis underlined):

“Reflecting its accessibility and its dramatic scenery, the island has long been popular with visitors. Over the years it has attracted painters, poets and writers as well as the day-tripper and walker.

The ascent of Goatfell from Brodick is a classic hill walk, providing spectacular panoramic views of the Firth of Clyde, while a visit to Brodick Castle and its beautiful gardens provides a less strenuous alternative.

North Arran provides an ‘island adventure’ for people throughout southern Scotland.

Further Information:

The dramatic North Arran mountains, in particular Goatfell, are a magnet for walkers. The National Trust for Scotland (2000) states with respect to the Goatfell area, ‘the landform with its jagged, granitic summits and ridges provides a dramatic and awe inspiring setting for the walking experience.’

Recreation also includes golf and cricket; visits to Lochranza Castle or to the National Trust for Scotland’s designed landscape and gardens of Brodick Castle; boating or playing on the sandy beach of Brodick Bay; or just enjoying views from many viewpoints.

The landscape is an accessible holiday or daytrip destination for large centres of population – particularly Glasgow and southwestern Scotland."

- 6.207 The proposed development would be located outwith the NSA on the Kintyre peninsula and although it would not affect access to outdoor recreation, or inward views within the NSA, it would be visible from the summits and slopes of the western hills (and limited visibility from the west coastline) 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 influenced by wind farm development on the Kintyre skyline and thus the proposed development would not appear as a new feature.
- 6.208 The relevant component of this SLQ is the outdoor recreational enjoyment and experience on a popular island for locals and visitors. 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

- 6.209 Consultation with NS and ABC 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 7

- 6.210 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 both the western coastline and elevated areas on Arran, minimising hub visibility from the western coastline of Arran. The cumulative appearance of the proposed development alongside other adjacent and nearby wind farms was also taken into consideration. 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.
- 6.211 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 7

- 6.212 There would be No View of the proposed development from a number of recognised recreational destinations described in the SLQ description, as follows:
- The classic hill walking route from Brodick to Goatfell, except from the summit and ridgeline of Goatfell at over 25.5km;
 - Lochranza Castle;
 - Brodick Castle;
 - Brodick Bay;

- No golf or cricket clubs;
 - Specific Viewpoint of Newton Point; and
 - Promoted car parks to 'enjoy views' including those from Lochranza and Catacol.
- 6.213 The proposed development would be partially visible (up to three blade tips and one occasional hub) from the west coastline of the NSA, and slightly greater visibility from western hill slopes and summits (and some central summits). As indicated by the ZTVs (Figures 6.9b/c), there would be no visibility of the proposed development from large parts of the NSA, including from the more remote interior and many of the popular Core Paths and recreational routes. Where the proposed development is visible on the Kintyre peninsula, it would have an obvious visual relationship to other existing wind farms along the upland spine resulting in a very limited effect on the '*dramatic and awe inspiring setting for the walking experience*'.
- 6.214 From the western coastal areas, the proposed turbines would be mostly screened by intervening landform such that they would be partially visible as three blade tips and occasionally one hub alongside existing turbines as illustrated in Viewpoint 9, Figure 6.27 and Viewpoint A, Figure 6.5.A in Appendix 6.5. There are several recreational opportunities along the coastline including the Arran Coastal Way and various beaches with informal parking. The main orientation of views is to the west across Kilbrannan Sound towards the expanse of the Kintyre peninsula. The proposed turbines would occupy a very narrow horizontal and vertical FoV of this expansive panorama and the sense of change to the SLQ would be very limited.
- 6.215 Visibility would gradually increase from the Corbett summits and ridges of Goatfell, Caisteal Abhail and Beinn Tarsuinn located over 23km, and some of the lower summits (less popular hills) in the west / northwest including Mullach Buidhe (Beinn Bharrair – Viewpoint 12) and Coirein Lochain. From these elevated locations, all of the turbines would be visible, in clear conditions, affecting no more than approximately 5° of the horizontal FoV and mostly backclothed by the sea. They would be to the fore of the existing Blary Hill and Beinn an Tuirc I turbines. The turbine composition would appear as a simple linear group of turbines (with some turbines appearing in pairs), set along and beyond the skyline / landform appearing alongside existing turbines. The lower parts of the proposed turbines would be screened by intervening landform. These views would often be experienced as wide panoramic views typically 360° and viewing over long distances (Very Low magnitude). The existing context of other wind farms, the separating influence of the Kilbrannan Sound and the intervening distance would limit the sense of change to the character or impression of this SLQ.
- 6.216 For the above reasons, the proposed development would not affect the '*island adventure*' or visitor experience for those enjoying the outdoor pursuits on the island. The panoramic views of the Firth of Clyde would be unaffected by the proposed development.
- 6.217 To conclude, the proposed development would lead to a Low-Very Low magnitude or nature of change on this SLQ. The level of landscape effect on this SLQ would be **Moderate to Minor** and Not Significant. The nature of this effect would be long term (reversible), indirect, and negative to neutral.

- 6.218 Existing and consented wind farms on the Kintyre peninsula have a Moderate to Minor effect (Low to Very Low magnitude) on the 'outdoor recreation' of the SLQ and appear in the same view as the proposed development. The proposed development would be seen entirely within the horizontal FoV of Blary Hill, Beinn an Tuirc I and Auchadaduie wind farms and would not deviate from the 'cluster and space' pattern of existing wind farm development along the Kintyre peninsula. The level of combined cumulative landscape effect on this SLQ would be **Moderate to Minor** and Not Significant. The additional cumulative landscape effect on this SLQ would also remain **Moderate to Minor** and Not Significant. The nature of this effect would be cumulative, indirect, long term (reversible) and negative to neutral.
- 6.219 Other application wind farms, in particular the West Torrisdale Wind Farm located to the fore of the proposed development would have a Moderate effect (Low magnitude) on this SLQ. The level of combined cumulative landscape effect on this SLQ would be **Moderate** and Significant (primarily due to West Torrisdale, and not the proposed development). The additional cumulative landscape effect on this SLQ would be reduced to **Minor** and Not Significant (reduced due to the presence of West Torrisdale). The nature of this effect would be cumulative, indirect, long term (reversible) and negative to neutral.

Step 3b: SLQ7 – Summary of night-time effects

- 6.220 In relation to night-time effects on this SLQ (assessed in detail in Technical Appendix 6.4), visibility of the aviation warning lights from the NSA is limited to the upper, elevated slopes and summit areas of Beinn Bharrain (Mullach Buidhe), Meall nan Damh, and Beinn Bhreac in the northwestern part of the NSA between 15-20km distance, and further inland from the eastern peaks around Goatfell beyond 22km distance. Viewed from these areas, up to four aviation warning lights from the proposed development would appear as points of light beyond the NSA and Kilbrannan Sound on the upland skyline of the Kintyre peninsula, adjacent to and in the context of other light sources as noted above. The proposed development would slightly increase the presence of artificial lighting in outward views from the NSA (but to the fore and adjacent to other light sources), and aviation lighting would increase the duration over which potential effects on the SLQ are experienced. Assuming a high sensitivity, the magnitude of change would range between Low-Very Low to Very Low. The level of effect would vary between **Moderate to Minor, to Negligible** and Not Significant. The nature of these effects would be indirect, long-term (reversible) and negative to neutral. Angle intensity mitigation would have little effect on the hill summits but would reduce the light intensity from the facing slopes to between 204-38cd.
- 6.221 Visibility of the aviation lights from the western coastline of Arran is limited to no more than one aviation warning light (T2) from some parts of the coast. Where visible, it would be seen in the context of other light sources as noted above, and the magnitude of change would be Very Low. The level of effect would be **Minor to Negligible** and Not Significant. The nature of these effects would be indirect, long-term (reversible) and neutral. Angle intensity mitigation would reduce the effects in this area further by reducing the light intensity to between 100-38cd.

- 6.222 Taking account of these different areas and levels of effect there would be no significant effects on the North Arran NSA or its assumed special landscape quality of 'dark skies'.
- 6.223 In relation cumulative night-time effects and Scenario 1, the additional effect of the proposed development would remain **Moderate to Minor, to Negligible** and Not Significant. The combined cumulative effect of all existing and consented lit developments together and the proposed development would also remain **Moderate to Minor, to Negligible** and Not Significant. In relation to Scenario 2, the additional effect of the proposed development would be slightly reduced to **Minor** and Not Significant (due to the presence of existing, consented and proposed lights). The combined cumulative effect of all existing, consented and other lit application developments together with the proposed development would slightly increase to **Moderate** and Not Significant. The nature of these effects would be indirect, long-term (reversible), cumulative and negative.

Step 4: Summary of effects on SLQs

- 6.224 The proposed development is not located within the North Arran NSA, being 11.3km from the nearest point of theoretical visibility within the NSA and would be largely seen in certain outward views during the day and at night, beyond the NSA boundary. The NSA citation notes eight SLQs, of which only one was considered to be potentially affected by the proposed development – SLQ 7: "An exceptional area for outdoor recreation."
- 6.225 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).
- 6.226 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 day or night-time effects on any of the SLQs of the NSA, including SLQ 7. In particular the proposed development would not significantly affect access to recreational activity or the "dramatic and awe inspiring setting for the walking experience" of the NSA that is valued as an SLQ recognised in the NSA designation.
- 6.227 In all cases, the proposed development would be seen in the context of other existing and consented wind farm development according with that pattern of development. Although cumulative, the proposed development would represent a non-significant additional cumulative effect. As a smaller feature perceived from the NSA in wide panoramic views, the proposed development would not therefore significantly contribute to combined cumulative effects resulting from other existing and consented wind farms and wind farm applications. Similarly, at night, up to four aviation warning lights of the proposed development would be seen in the context of other existing light sources from roads, settlements and existing lit turbines as noted in Technical Appendix 6.4, and in combination with the intervening distance, there would be no significant night-time effects.

6.228 The proposed development has been sited and designed to reduce as far as practicable, the potential for significant adverse (negative) day and night 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.

6.229 A summary of the SLQ assessment for the NSA is set out in Table 6.11.

Table 6.11: SLQ Assessment for the North Arran NSA

Special Landscape Quality (SLQ)	Sensitivity	Magnitude	Level of Effect
Day-time Effects			
SLQ 1: A mountain presence that dominates the Firth of Clyde	Not assessed – the proposed development would have a negligible effect on views towards Arran, the NSA and the Firth of Clyde.		
SLQ 2: The contrast between the wild highland interior and the populated coastal strip	Not assessed – physical characteristic that could not be affected by the proposed development which is well beyond the NSA boundary.		
SLQ 3: The historical landscape in miniature	As above.		
SLQ 4: A dramatic, compact mountain area	As above.		
SLQ 5: A distinctive coastline with a rich variety of forms	As above.		
SLQ 6: One of the most important geological areas in Britain	As above.		
SLQ 7: An exceptional area for outdoor recreation	High	Low-Very Low	Moderate to Minor (Not Significant)
SLQ 8: The experience of highland and island wildlife at close hand	Not assessed – the proposed development may be visible whilst wildlife watching but would not hamper views of it.		
Night-time Effects			
SLQ 7: An exceptional area for outdoor recreation	High	Low-Very Low	Moderate to Minor (Not Significant) (Upper, elevated slopes and summit areas)
		Very Low	Minor to Negligible (Not Significant) (western coastline)

North Arran SLA

6.230 As noted above, the locally designated *North Arran* SLA is broadly overlapped by the North Arran NSA. Since there is no document which describes the ‘SLQs’ of the SLAs within North Ayrshire, the assessment of the North Arran SLA is assumed to combine with the SLQs of the NSA and therefore the assessment of the NSA is considered to encapsulate the assessment of the SLA.

6.231 The only additional area covered by the North Arran SLA occurs along the coastline to the south of the NSA boundary between Cleiteadh Buidhe and Blackwaterfoot where

it continues inland and rejoins the NSA boundary near Dereneneach. This area contains routes to a number of archaeological sites as well as beaches and facilities for golf, and coastal Core Paths. Views from the coastline of this area are considered in Viewpoints A - Machrie Bay, and B - Blackwaterfoot, (Figures 6.5.A-B, Technical Appendix 6.5). These views indicated that the proposed turbines would be mostly screened by landform resulting in visibility of a hub and partial blades / tips in part of the view already influenced by wind farm development. Views from inland within the archaeological areas would be very limited due to screening from landform in places and surrounding scrub and field boundary planting which would provide glimpsed views towards Kintyre where ZTV cover is indicated.

- 6.232 To conclude, the effects on the SLQs of the SLA would be the same as the NSA (Moderate to Minor and Not Significant). The area of the SLA outwith the NSA would not incur any significant effects from the introduction of the proposed development.

Residual Visual Effects

- 6.233 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."

- 6.234 The assessment has taken a precautionary approach and focused on visual receptors character within 10km. 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 6.3km of the proposed development.
- 6.235 Night-time visual effects are assessed separately in Technical Appendix 6.4.

Visual Effects during Construction, Operation and Decommissioning

- 6.236 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.
- 6.237 An outline description of the visual effects associated with the construction and decommissioning phases is set out here.

Visual Effects during Construction

6.238 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 adverse. 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.

6.239 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:

For the northern route option, approximately 13.08km of new access track is proposed including a new crossing of the Barr Water. The new 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 undulating landform which partly screens views and features existing wind farm access tracks. The access track would cross the Barr Glen minor road but would not cross any recreational routes.

The southern route option would utilise the existing Barr Glen minor road before using part of the Blary Hill Wind Farm access track and adding an additional 8.65km of access track heading east along the northern slopes of Blary Hill, turning southeast to the east of Blary Hill. There would be temporary significant effects from the use of the Barr Glen minor road during construction as a result of the southern access track option.

- Temporary construction compound:

One temporary construction compound is proposed. This is sited at a less elevated part of the site where it is not in a visually prominent location and is unlikely to cause significant visual effects during the construction period.

- Grid Connection Infrastructure:

As with the temporary construction compound, the substation is located within a less elevated part of the site where it is not visually prominent and is unlikely to cause significant visual effects during the construction period.

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.

Visual Effects during Operation

6.240 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

- 6.241 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

- 6.242 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*.
- 6.243 In summary, there would be significant effects on the views from the northern and eastern edge of Glenbarr. None of the other settlements within the Study Area would be significantly affected by the proposed development.
- 6.244 Additionally, a Residential Visual Amenity Assessment (RVAA) has been conducted for those properties within approximately 3km of the proposed development. The results of the RVAA are reported in Technical Appendix 6.3 and confirm that although the views from five of the six properties would be significant, none of the properties would be affected by the proposed development in terms of their residential visual amenity. This is due largely to the intervening distance, partial screening, use / orientation of the property and presence of other wind farms, such that the living standards would not be affected, and the property would not be adversely affected to the extent that it would become an unattractive place to live when judged objectively and in the public interest, on an individual basis or cumulatively.

Table 6.12: Visual Effects on Views from Settlements within 10km

Settlement	Assessment
Glenbarr	Glenbarr is a small settlement to the west of the Kintyre peninsula located adjacent to the A83, approximately 5.4-5.7km distance west of the proposed development. The settlement is located on a gently sloping landform to the north of the Barr Water and is situated along a minor road to the east of the A83. The main street comprises a minor road running south from the A83 as it swings round to the southwest. Most properties in the settlement are situated along the main street and a cul de sac to its west, but Glenbarr Abbey is situated amongst woodland to the south. There is also a row of properties in a cul de sac on the east side of the A83, occupying more elevated terrain a few hundred metres further north. Many of the houses are orientated east - west along the minor road and are single storey or 1 ½ storey. There are open views across agricultural fields from the more elevated northern areas of the

Settlement	Assessment
	settlement, particularly to the east along Barr Glen. From areas to the south of the settlement there are some views south across Barr Glen from elevated properties, but woodland filters views from lower lying areas. Views to the west from the settlement are generally screened by landform, in particular, Victoria Hill to the west of the A83. The wind farms at Auchadaduie, Blary Hill and Beinn and Tuirc I are visible to the east of the settlement, with coniferous forestry in relatively close proximity, and extending into more distant moorland south of Cnoc Donn. From the more elevated northern edge of the settlement, several turbines at Tangy I and Tangy II are also just visible to the south. <u>Assessment: proposed development</u> The ZTV indicates full theoretical visibility of the turbines across the settlement. The main views towards the proposed development would be from properties to the east of the settlement and in particular from the more elevated north and east of the settlement. Viewpoint 3, Figure 6.21 illustrates views from the War Memorial beyond the northern edge of the settlement and is therefore not representative of views from properties in the north of the settlement which would be at a slightly lower elevation and subject to orientation and garden vegetation. From the properties in the north of the settlement, all of the turbines would be theoretically visible with some of the lower towers screened by intervening landform. The hubs would be visible on the skyline affecting approximately 16° of the horizontal FoV (Medium magnitude). The turbines would appear evenly spaced on the horizon behind the existing Blary Hill and Auchadaduie wind farms and to the fore of the Beinn an Tuirc Wind Farm. Properties on the eastern edge of the settlement would experience glimpsed views of the proposed turbines between buildings (Medium magnitude). Residential properties to the south and southwest of the settlement would experience increased screening from landform and woodland which would fully screen the proposed turbines from some properties (Very Low to Zero magnitude). There would be very limited or glimpsed views of the northern access track option from the settlement. The southern route option would utilise existing access track that passes through the settlement – thus although there would be no additional views of access track with this option, there would be views of construction traffic. A small part of the access track near turbines 1 and 2 may also be visible in distant views from elevated properties to the north of the settlement. Taking the settlement as a whole, the magnitude of change would range between Medium at the eastern and northern edges of the settlement, and Very Low to Zero to the south of the settlement. The level of effect on the views and visual amenity of Glenbarr would be Major and Significant (eastern and northern edge) to Minor to No View and Not Significant (remainder of settlement). This level of effect would be no greater during construction and would reduce during decommissioning. The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> The proposed development would be visible behind Blary Hill (Medium magnitude) and Auchadaduie wind farms (High-Medium magnitude), and to the fore of Beinn an Tuirc I, partly screened by land from (Low magnitude). Hubs and blades of Tangy I and II are theoretically visible to the south but screened by forest and the consented Tangy IV Repower would be visible above the intervening forest (Low magnitude). The additional effect of the proposed development would be reduced to Major to Moderate and Significant (due to the presence of other wind farms) to No View and Not Significant. The combined effect would increase to Substantial to Major and Significant (due to Auchadaduie and Blary Hill and to a lesser degree, the proposed development). Blary Hill and Auchadaduie would be decommissioned between ~16-19 years prior to the end of the operational period of the proposed development, reducing the cumulative effect. The

Settlement	Assessment
	nature of these effects would be long-term (reversible), indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> Cnoc Buidhe would be visible in views to the southeast (High-Medium magnitude). West Torrisdale would be theoretically visible as blades and tips behind the proposed development (Very Low magnitude). Breackerie would be theoretically visible to the south in clear conditions (Very Low to Zero magnitude). The additional effect of the proposed development would be reduced to Major to Moderate and Significant (due to the presence of other wind farms) to No View and Not Significant. The combined effect would be Substantial to Major and Significant (due to Auchadaduie, Blary Hill, Cnoc Buidhe and to a lesser degree, the proposed development). Blary Hill and Auchadaduie would be decommissioned between ~16-19 years prior to the end of the operational period of the proposed development, reducing the cumulative effect. The nature of these effects would be long-term (reversible), indirect, cumulative and negative.

Visual Effects on Views from Transport Routes

- 6.245 This section of the assessment considers the sequential and cumulative visual effects on views of the proposed development from selected transport routes within 10km of the proposed development.
- 6.246 The views from these routes (including ferry routes within 45km) 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 / ferry route. Each of the roads were driven and ferry routes travelled 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.
- 6.247 In summary, significant effects would be limited to sections of the following two transport routes:
- Up to approximately 1km of the A83 (also Kintyre 66 Tourist Route) between Glenbarr War Memorial and the junction south of Glenbarr; and
 - Up to approximately 3.2km of the Barr Glen unclassified road for eastbound users (and temporary significant effects as a result of the southern route option).
- 6.248 None of the remaining transport routes (including all ferry routes) would be significantly affected by the proposed development.

Table 6.13 Visual Effects on Views from Transport Routes (within 10km) and Ferry Routes (within 45km)

Transport Route	Assessment
A83 (incorporating)	The A83 connects Campbeltown in the south of the Kintyre peninsula to Kennacraig in the north where it continues along Loch Fyne before crossing to Tarbet at Loch Lomond. It is the main route along the length of the Kintyre

Transport Route	Assessment
Kintyre 66 Tourist Route)	peninsula, and across Argyll and is approximately 158km in length. The route also forms part of the designated Kintyre 66 Tourist Route between Campbeltown and Kennacraig and is also signposted as the Argyll Coastal Route intermittently along this entire route. Viewpoints 15 and 16 are located on this route with Viewpoint 3 located close the route at Glenbarr War Memorial. It is be noted that Viewpoint 16 is located on the B842 but it forms part of the Kintyre 66 Tourist Sub-Route. As a promoted tourist route, the value of the route is assessed as High. Parts of the A83 also pass though areas of locally designated landscapes including the Mull of Kintyre, and East and West Kintyre (Coast) LLAs. The susceptibility to change from the introduction of the proposed development is considered to be High to Medium. This is due to the long open views, focused in a westward direction or north / south along the coastline, the influence of other wind farm development and levels of roadside vegetation screening. The overall sensitivity of this route is therefore assessed as <i>High</i>. <u>Assessment: proposed development</u> This route has been assessed within the 45km Study Area given its importance as the Kintyre 66 Tourist Route and main route along the peninsula. ZTV analysis indicates very few areas of overlap within the Study Area where there would be theoretical visibility of the proposed turbines, as follows: Between Inverneil in the north and Kennacraig, the ZTV overlaps the A83 at Barmore, south of Stonefield for ~0.2 km where between 1-6 turbines would be visible to the southwest. Wireline analysis indicates that three blade tips would be theoretically visible. In reality, these would be screened by intervening vegetation (Zero magnitude). Between Kennacraig and Mausdale, the ZTV overlaps the A83 as the southbound route descends from an elevated section adjacent to Sheirdrim Hill at Achavraid, north of Clachan for ~1.1 km. From this section between 1-6 turbines would be theoretically visible to the southwest for southbound traffic. Wireline analysis indicates that up to four partial blades / blade tips would be theoretically visible with the lower parts of the turbines screened by intervening landform (Very Low magnitude). Viewpoint 15 illustrates views from this section of the route. Between Mausdale and Campbeltown, the ZTV overlaps the A83 at Glenbarr for approximately 1.7km of the route. Views would be mostly perpendicular to the route along Barr Glen for both south and northbound road users with some less oblique views as the road curves towards the glen for northbound road users. There would be some intermittent screening from buildings and roadside vegetation, mainly to the south, but views are generally open along the glen. Where there are open views between Glenbarr War Memorial and south of the Glenbarr junction (less than 1km), all of the proposed turbines would be visible on the skyline at approximately 5.6km distance, with some of the lower turbine towers partially screened by landform as illustrated in Viewpoint 3, Figure 6.21 (Medium magnitude – this is slightly lower than the magnitude assessed for Viewpoint 3 due to the direction of view in relation to the road (oblique to perpendicular), intermittent screening, fleeting view and presence of other wind farms located closer to the route). Between Campbeltown and Southend, ZTV coverage is indicated between Dalrioch and Killellan (4.2km of the route). Views of the turbines from this section of the route would be experienced by northbound road users at between 17km – 21km. Views along this section of the route would be mostly open with some intermittent screening from trees or occasional residential buildings. The proposed turbines would be visible in the direction of travel (northbound) mostly as hubs with the lower towers screened by landform as illustrated in Viewpoint 16, Figure 6.34 (Low-Very Low to Zero magnitude). There would be views of a new junction with the proposed northern access track option to the north of Glenbarr School and some visibility of the track as it passes through open, rising landform to the east of the road. The track and entrance would be visible for approximately 0.4km between the school and Belloch Farm,

Transport Route	Assessment
	mostly for northbound road users who would gain elevated views on approach. The track would not be dissimilar to adjacent farm access tracks (Low to Zero magnitude). The southern route option would utilise existing roads at the settlement of Glenbarr (Zero magnitude). There would be no further views along the route. In summary, the magnitude of change would range from Medium to Zero and the level of effect would be Major and Significant (for <1km of the route between Glenbarr War Memorial and south of the junction at Glenbarr), to Minor to No View and Not Significant (majority 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 proposed development would be visible behind Blary Hill Wind Farm (Medium to Zero magnitude), and to the fore of Beinn an Tuirc I, partly screened by landform (Very Low to Zero magnitude). Auchadaduie is visible in the same view (High-Medium to Zero magnitude). Tangy I/II (Very Low to Zero magnitude) and Tangy IV Repower would be visible at Glenbarr (Low to Zero magnitude). The existing Gigha community turbines would also be inter-visible in oblique views in the opposite direction in clear conditions (Very Low to Zero magnitude). Clachaig Glen would be visible from northern parts of the route (Low to Zero magnitude). The additional effect of the proposed development would be reduced to Major to Moderate and Significant to No View and Not Significant (due to the presence of other wind farms). The combined effect would be Substantial to Major and Significant (mainly due to Auchadaduie, and to a lesser degree Blary Hill and the proposed development) to No View and Not Significant. Blary Hill and Auchadaduie would be decommissioned between ~16-19 years prior to the end of the operational period of the proposed development, 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> Cnoc Buidhe application would be visible with the proposed development at Glenbarr to the south and southeast affecting approximately 42° of the horizontal FoV (High-Medium to Zero magnitude). Killeen would also be visible from northern parts of the route (Medium to Zero magnitude). The additional effect of the proposed development would remain Major to Moderate and Significant to No View and Not Significant. The additional effect of the proposed development would be reduced to Major to Moderate and Significant to No View and Not Significant (reduced due to the presence of other wind farms). The combined effect would be Substantial to Major and Significant (mainly due to Auchadaduie, and to a lesser degree Blary Hill, Cnoc Buidhe, Killeen and the proposed development) to No View and Not Significant. Blary Hill and Auchadaduie would be decommissioned between ~16-19 years prior to the end of the operational period of the proposed development, reducing the cumulative effect. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Barr Glen Road (Unclassified Road)	This minor, single track road follows Barr Glen from Glenbarr in the west to Arnicle Farm in the east (approximately 4.4km in total). As such there is no 'through traffic' passing along the route to other destinations. The route gently undulates and curves as it follows the lower contours to the north of the Barr Water, passing areas of woodland in places. Viewpoint 2 is located along this route. This road is not a designated tourist route and is not located within any national or locally designated landscape areas. The value of the road is therefore assessed as Medium. The route would be mainly experienced by local road users whose experience of the view is likely to be more transient and focused on the activity of driving. Therefore, susceptibility to change is assessed as Medium, with the overall sensitivity assessed as <i>Medium</i>. <u>Assessment: proposed development</u>

Transport Route	Assessment
	The ZTV coverage indicates theoretical visibility of all nine turbines along this route. Travelling eastbound along the route, the proposed turbines would be visible in the direction of travel at distances between 5.6km (west of route) and 2.1km (east of route at Arnicle Farm). There are open views along the route with the exception of the section between Upper Barr and Kilmaluag (approximately 1.1km of the route) where the road dips towards the glen basin and surrounding landform in combination with roadside vegetation heavily filters views. East of Kilmaluag the road gains elevation and roadside vegetation becomes intermittent affording some open views along the glen. The proposed development would be visible east beyond the glen and Blary Hill which would screen some of the lower turbine towers, as illustrated in Viewpoint 2, Figure 6.20. Two turbines would be located on rising landform to the north of Allt a'Bhlair and would be visible in full length along the route with associated access track also visible from parts of the route. The turbines would always been seen in the context of other wind farms along this route including Auchadaduie and Blary Hill to the fore of the proposed development, and Beinn an Tuirc I beyond. There would be no visibility of the proposed development for westbound users. The proposed northern access track option would cross the route between Kilmaluag and Amod. The track would cross adjacent to an existing track from the north and there would be views of the track and a proposed single track bridge as the route crosses the glen floor and heads southeast, before crossing the Barr Water, climbing the lower slopes of the glen and heading east. Views would be partially filtered by roadside vegetation from this section of the route (Medium to Zero magnitude for approximately 1km). The proposed southern access track option would utilise the Barr Glen minor road for the first 4.2 km before departing the route and accessing the Blary Hill Wind Farm access route. Where the route is used, the Barr Glen road would be potentially upgraded with the introduction of new passing places (Medium to Zero magnitude for approximately 4.2km (High magnitude during construction)). The magnitude of change would be High-Medium for ~3.2km, reducing to Medium-Low magnitude for ~1.1km between Upper Barr and Kilmaluag and the level of effect would be Major to Moderate (for ~3.2km of the route for eastbound users only) to Moderate to Minor and Not Significant (for ~1.1km). There would be temporary Major and Significant effects from the use of the Barr Glen minor road during construction (southern access track option), reducing to Moderate and Not Significant effects. Effects from the introduction of the northern access track route option would be Moderate and Not Significant due to partial filtered views and the positioning of the track adjacent to existing track and field boundaries. Significant effects would affect most of the route where there are open views of the proposed turbines in eastbound travel, and views of construction traffic (southern access track route option). The nature of these effects would be long-term (reversible), indirect to direct and negative (with direct effects arising from the introduction of access tracks). <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> The proposed development would be visible behind Blary Hill Wind Farm (High magnitude), and to the fore of Beinn an Tuirc I, partly screened by land from (Low magnitude). Auchadaduie would also be visible appearing at a similar height and scale as Blary Hill (High magnitude). Clachaig Glen and Tangy IV Repower would be barely discernible from this route (Very Low to Zero magnitude). The additional effect of the proposed development would be reduced to Moderate and Significant to Moderate to Minor and Not Significant. The combined effect would be Substantial to Major and Significant (due to Blary Hill, Auchadaduie, and the proposed development). Blary Hill and Auchadaduie would be decommissioned between ~16-19 years prior to the end of the operational period

Transport Route	Assessment
	of the proposed development, 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> Cnoc Buidhe would be visible in views from the west of the route mostly to westbound road users (Medium magnitude). West Torrisdale would be theoretically visible as a blade and tip behind the proposed development (Very Low to Zero magnitude). The additional effect of the proposed development would be reduced to Moderate and Significant to Moderate to Minor and Not Significant. The combined effect would be Substantial to Major and Significant (due to Blary Hill, Auchadaduie, Cnoc Buidhe and the proposed development). Blary Hill and Auchadaduie would be decommissioned between ~16-19 years prior to the end of the operational period of the proposed development, reducing the cumulative effect. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Ferry Routes	
Taylinoan – Gigha Ferry	This short ferry route connects the Kintyre peninsula with the Isle of Gigha (approximately 4.5km distance). Viewpoint 10 is located at the start of this route on Gigha. The route is promoted in tourist literature and passes between locally designated coastlines and landmasses. The value of the route is assessed as High-Medium. Ferry passengers would experience the landscape and seascape transiently whilst on the ferry but many would be focused on landscape and seascape features and scenery including recreational users on yachts and kayaks / canoes / paddle boards in the Sound of Gigha (High susceptibility). To conclude the overall sensitivity of passengers on this route has been assessed as <i>High</i>. <u>Assessment: proposed development</u> ZTV coverage is indicated halfway across the Sound of Gigha, covering the area from the eastern edge of Gigha to slightly east of Sgeir a' Caolas. Visibility between Gigha to slightly east of Sgeir a' Caolas would vary due to a combination of intervening distance and landform such that the turbines would gradually recede behind intervening landform as the ferry progresses from Gigha towards Kintyre. At their most visible, the turbines would be visible as hubs and blades on the horizon (as illustrated in Viewpoint 10, Figure 6.28) (Low magnitude for ~1km), gradually reducing to blades and tips as the ferry progresses east at distances between 14km and 11.6km (Very Low to Zero magnitude), and would appear to the fore of the existing Beinn an Tuirc I / II turbines and in the context of other wind farms in the view. The magnitude of change would range from Low to Zero and the level of effect would be Moderate to Minor, to 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> There would be partial views of the Beinn an Tuirc cluster of turbines partially behind the proposed turbines to the southeast (Very Low magnitude), other visible wind farms to the south include Auchadaduie, and Tangy I and II (Very Low magnitude). The Gigha Community turbines would also be partially visible to the southwest, filtered by vegetation (Low magnitude). The consented Clachaig Glen would be visible as upper towers and hubs to the southeast at approximately (Medium-Low magnitude). The additional effect of the proposed development would be reduced to Minor to No View and Not Significant (reduced due to the presence of other wind farms). The combined effect would be Major to Moderate and Significant (due to Clachaig Glen and <u>not</u> 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>

Transport Route	Assessment
	Cnoc Buidhe (Low magnitude) would be visible on the skyline the right of the proposed development, and Killean (Medium magnitude) to the left of the proposed turbines. Breackerie would also be partly visible to the south in clear conditions (Very Low magnitude). The additional effect of the proposed development would be reduced to Minor to No View and Not Significant (reduced due to the presence of other wind farms). The combined effect would be Major and Significant (due to Clachaig Glen, Killean and <u>not</u> the proposed development). The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Kennacraig – Port Ellen / Port Askaig Ferry	There are two ferries connecting West Loch Tarbert (Kennacraig) Kintyre to the Isle of Islay. The Kennacraig to Port Ellen ferry passes to the west of Gigha to the south of the Isle of Islay, and the Kennacraig to Askaig ferry, passes to the north of Gigha before continuing northwest to the northeast of Islay. The routes are promoted in tourist literature and pass near locally designated coastlines and landmasses, with the Port Askaig ferry passing along the boundary of the Jura NSA. The value of the route is therefore assessed as High. Ferry passengers would experience the landscape and seascape transiently whilst on the ferry but many would be focused on landscape and seascape features and scenery including recreational users on yachts (High susceptibility). To conclude the overall sensitivity of passengers on this route has been assessed as <i>High</i>. <u>Assessment: proposed development</u> ZTV coverage indicates theoretical visibility would occur as the ferries approach the north of Gigha from West Loch Tarbert and continue between Gigha and the final destination ports (with visibility absent as the ferries approach Port Ellen and Askaig). Travelling from Kintyre to Islay, the proposed development would be visible at distances between approximately 18km and 43km (Askaig) / 38km (Port Ellen). The turbines would be visible on the skyline from the ferries in views towards Kintyre with the lower towers screened by landform as illustrated by Viewpoint 17, Figure 6.35 (Very Low magnitude). As the routes progress further from the turbines, the proposed turbines would become more visible in the landform with the lower turbines backclothed by low hills. The lower parts of the turbines would be screened by intervening landform. Visibility would vary with increased distance and more panoramic views where the proposed development would appear as a small scale feature on the skyline (Very Low to Zero magnitude). The magnitude of change would range from 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. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> There would be partial views of several wind farms along the spine of Kintyre including the Beinn an Tuirc cluster of turbines (partially behind the proposed turbines), Deucheran Hill, Blary Hill, Auchadaduie, and Tangy I and II to the south (all Very Low magnitude). Cour and Freasdail are also partially visible (both Very Low magnitude). Some wind farms would be more visible as the ferries near Kintyre including the consented Clachaig Glen and High Constellation (Low magnitude and Low-Very Low magnitude respectively). The additional effect of the proposed development would be reduced to Negligible to No View and Not Significant (due to the presence of other wind farms). The combined effect would be Moderate and Not Significant (due to Clachaig Glen). 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 partial views of several wind farms along the spine of Kintyre including Killean (Low magnitude), Cnoc Buidhe (Low-Very Low magnitude), Breackerie to the south of Kintyre visible in clear conditions (Very Low to Zero magnitude). Blade tips of West Torrisdale would be barely perceptible (Very Low magnitude). The additional effect of the proposed development would be reduced to Negligible to No View and Not Significant (due to the presence of

Transport Route	Assessment
	other wind farms). The combined effect would be Moderate and Not Significant (due to Clachaig Glen and Killean). The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Claonaig - Lochranza Ferry	This short ferry route connects the Kintyre peninsula with the Isle of Arran (approximately 7.2km distance). Although promoted, the ferry is a less used tourist route to Arran. The route passes into the North Arran NSA. The value of the route is assessed as High. Ferry passengers would experience the landscape and seascape transiently whilst on the ferry but many would be focused on landscape and seascape features and scenery including recreational users on yachts and kayaks / canoes / paddle boards in the Kilbrannan Sound (High susceptibility). To conclude the overall sensitivity of passengers on this route has been assessed as <i>High</i>. <u>Assessment: proposed development</u> ZTV coverage is indicated for the majority of the route, with full visibility reducing to theoretical visibility of up to six turbines as the ferry approaches Lochranza from Claonaig. Views from the route are illustrated in Viewpoint 18, Figure 6.36. At their most visible, the turbines would be visible as blades and blade tips on the horizon (as illustrated in Viewpoint 10, Figure 6.28) (Very Low magnitude), gradually reducing to blade tips as the ferry progresses southeast at distances over 22.5km. There would be no visibility as the route reaches Lochranza. The magnitude of change would range from Very Low to Zero and the level of effect would be Negligible 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> Beinn an Tuirc / II / III would be partly visible on the skyline of the Kintyre peninsula (Very Low magnitude). Deucheran (Very Low magnitude) and Cour (Low-Very Low magnitude) would be partly visible as a cluster. Eascairt would be visible to the west (Medium magnitude). High Constellation would be partially visible to the southwest at (Medium-Low magnitude). Blades and tips of Clachaig Glen would be barely discernible to the southwest (Very Low to Zero magnitude). The additional effect of the proposed development would remain Negligible to No View and Not Significant. The combined effect would be Major and Significant (due to Eascairt and High Constellation and <u>not</u> 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 application West Torrisdale Wind Farm would be partially visible as hubs to the southwest adjacent to the proposed development (Very Low magnitude). Killean blades may be visible behind Cour (Very Low to Zero magnitude) to the left of the proposed development. The additional effect of the proposed development would remain Negligible to No View and Not Significant. The combined effect would be Major and Significant (due to Eascairt and High Constellation and <u>not</u> the proposed development). The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Tarbert - Lochranza Ferry	This ferry route connects Tarbert to the north of the Kintyre peninsula with the Isle of Arran (approximately 20km distance). Although promoted, the ferry is a less used tourist route to Arran. The route passes into the North Arran NSA. The value of the route is assessed as High. Ferry passengers would experience the landscape and seascape transiently whilst on the ferry but many would be focused on landscape and seascape features and scenery including recreational users on yachts and kayaks / canoes / paddle boards in the Kilbrannan Sound and Loch Fyne (High susceptibility). To conclude the overall sensitivity of passengers on this route has been assessed as <i>High</i>. <u>Assessment: proposed development</u>

Transport Route	Assessment
	ZTV coverage is indicated for the southern part of the route as the proposed turbines become visible beyond Skipness Point and the route progresses to Lochranza. Full visibility near Skipness reduces to theoretical visibility of up to six turbines as the ferry approaches Lochranza from Clanoig. At their most visible, the turbines would be visible as blades and blade tips on the horizon (Very Low magnitude), gradually reducing to blade tips as the ferry progresses southeast at distances over 23km. There would be no visibility as the route reaches Lochranza. The magnitude of change would range from Very Low to Zero and the level of effect would be Negligible 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> Beinn an Tuirc / II / III would be partly visible on the skyline of the Kintyre peninsula (Very Low magnitude). Deucheran and Cour would be partly visible as a cluster (Very Low magnitude). Eascairt would be visible to the west (Low magnitude). High Constellation would be partially visible to the southwest at (Low magnitude). The additional effect of the proposed development would remain Negligible to No View and Not Significant. The combined effect would be Moderate and Significant (due to Eascairt and High Constellation and <u>not</u> 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 application West Torrisdale Wind Farm would be partially visible as hubs to the southwest adjacent to the proposed development (Very Low to Zero magnitude). Killeen would be visible behind Cour (Very Low to Zero magnitude) to the left of the proposed turbines. The additional effect of the proposed development would remain Negligible to No View and Not Significant. The combined effect would be Moderate and Significant (due to Eascairt and High Constellation and <u>not</u> the proposed development) 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 Recreational Routes

- 6.249 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 10km of the proposed development, and national recreational routes within 45km of the proposed development. These routes are illustrated in Figures 6.10/11.
- 6.250 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.
- 6.251 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.
- 6.252 In summary, there would significant visual effects from parts of the following two recreational routes:

- Kintyre Way (overlapped with Core Path C094b); and
- Core Path C304 (southern section of the route for around 0.4km).

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

Table 6.14: Visual Effects on Views from Recreational Routes

Recreational Route	Assessment
National Recreational Routes (within 45km)	
The Kintyre Way (overlapping with Core Paths C088, C094 and others beyond 10km)	The Kintyre Way, one of Scotland's Great Trails, traverses the Kintyre Peninsula from Tarbert in the north to Machrihanish in the south and is a total of 161km in length. It crosses the Kintyre ridge a number of times, passing close to several wind farms. The path takes a sinuous / zigzag route through the peninsula, touching coastlines to the west, east and south as well as crossing elevated central moorland plateaus. The route overlaps with other Core Paths and minor roads. Viewpoints 4 and 6 are located along this route, Viewpoint 5 is located along a signposted spur very close to the route. <u>Assessment: proposed development</u> Starting in the north, there would be no visibility of the proposed development between Tarbert and Skipness with the exception of a short section south of Curach Doire Leithe – although views from this section would be screened by forest (Zero magnitude, Very Low if forest is felled). Between Skipness and Claonaig (for 3.2km of the route), the route follows the open rocky coastline and full theoretical visibility is indicated by the ZTV. From this section of the route, the proposed turbines would be theoretically visible in clear conditions as partial blades and tips at approximately 23km (Very Low magnitude). At Claonaig the route briefly joins the B842 and further ZTV coverage is indicated for 1.2km of this section. Views however would be screened or at most heavily filtered by roadside vegetation (Very Low to Zero magnitude). South of Claonaig the route departs the B842 and heads west across the upland plateau to Clachan in the west of the peninsular. Very limited theoretical visibility is indicated in the upland plateau in this section as the route passes through forestry at Achaglass. Wireline analysis indicates blades and hubs would be visible, but these would be screened by vegetation (Zero magnitude). There would be no further visibility as the route continues along the coastal edge to Killean and turns east. There would be very limited theoretical visibility as the route crosses the forested upland plateau between Killean and Carradale. The greatest visibility would occur on a short (0.3km) section at Loch na Naich where the hubs of the turbines would be visible at 6.3km as illustrated in Viewpoint 4, Figure 6.22 (Medium-Low magnitude for 0.3km). Further theoretical visibility is indicated where the route turns south and passes through forestry to the northeast of Loch na Naich (0.7km section of the route). There would be channelled visibility of two turbines and three partial turbines subject to forest cover (Medium-Low for 0.7km to Medium magnitude if forestry felled). A third section of visibility would occur as the route passes to the southeast of Deucheran Hill Wind Farm from this section a hub and some partial blades would be theoretically visible but would be mostly screened by forestry (Very Low to Zero magnitude for ~0.8km). Elsewhere a blade tip would not be discernible as the route passes Auchenbreck, and theoretical views of a blade and blade tips would be screened by forest north of Deer Hill (Zero magnitude). Views from a spur to Deer Hill summit are illustrated in Viewpoint 5, Figure 6.23 (Low-Very Low magnitude from the summit). South of Carradale, the route heads inland, travelling southwest to Lussa Loch. Much of this section of the route is forested and although theoretical visibility of between 1-3 turbines is indicated to the east and south of Cnocmalavilach Hill

Recreational Route	Assessment
National Recreational Routes (within 45km)	
	and north of A' Chruach, wireline analysis indicates a blade tip that would not be discernible in the view (Zero magnitude). The most extensive visibility along this section of the route would occur at Loch Lussa where ZTV cover indicates visibility of up to six turbines to the north of the loch for 0.5km of the route (a hub and partial blades/tips would be visible subject to forest cover – Low magnitude if forest is felled), visibility of 7-9 turbines for approximately 1km as the route passes to the west of the loch and for 1.2km as the route passes the north facing slopes of Skeroblin Cruach to the south of the Loch. Views from this section of the route are illustrated in Viewpoint 6, Figure 6.24 which illustrates that up to seven turbines would be partially visible as the route passes to the west of the loch (Low magnitude for 1km). To the south of the loch, the route is more elevated as it passes Skeroblin Cruach and all of the proposed turbines would be visible on the skyline in the 'saddle' between hills at 8.6 km distance (Low magnitude for 1.2km). Between Lussa Loch and Campbeltown, ZTV coverage is indicated for ~1.8km as the route passes between Puball Burn and High Ranachan. From these locations the proposed development would be visible as hubs and blades at over 10km distance and would be intermittently screened by buildings and local landform or vegetation (Low-Very Low to Very Low magnitude). From Campbeltown to the end of the route at Machrihanish, there is very limited ZTV coverage. To the south of Ballimenach, a blade tip would not be discernible in the view (Zero magnitude). ZTV coverage is indicated as the route descends from Innean Glen to Macrihanish for ~4.9km of the route. From this section of the route, the turbines would be visible as hubs and blades on the distant horizon at distances between 18km and 21km. Viewpoint 14, Figure 6.32 illustrates views from this section of the route (Low-Very Low magnitude). The magnitude of change would range from Medium to Medium-Low (intermittently for 0.3km and 0.7km as the route traverses the upland plateau near Loch na Naich, Low for 1km and 1.2km as it passes Lussa Loch), and Low-Very Low (at Deer Hill, between Puball Burn and High Ranachan, and between Innean Glen to Macrihanish). Elsewhere along the route there would be areas of Very Low, particularly to the north of the route where there would be distant partial views. For the majority of the route there would be No View of the proposed development. The level of effect would range from Major to Moderate (Major if forest felled) and Significant (intermittently for 0.3km and 0.7km near Loch na Naich) to Moderate to No View and Not Significant on the remainder of the route. The significant effects equate to less than 2% of the entire route, limited to the upland plateau near Loch na Naich. The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> There are several clusters of existing and consented wind farms that the northern and central sections of the Kintyre Way passes between existing wind farms. The main wind farms include Freasdail (Medium to Zero magnitude) and Eascairt (High-Medium to Zero magnitude) to the north, Deucheran Hill and Clachaig Glen (High to Zero magnitude) towards the centre of the peninsula and Beinn an Tuirc III (High to Zero magnitude). Other wind farm development including Cour, Beinn an Tuirc and its Extension, Blary Hill, Auchadaduie, Gigha, High Constellation and Tangy IV Repowering would also be visible sequentially along the route with lower (High to Low, to Zero) magnitude. The additional effect of the proposed development would be reduced to Moderate to No View and Not Significant (due to the presence of other wind farms). The combined effect would be Substantial and Significant (due to Freasdail, Eascairt, Deucheran Hill, Clachaig Glen, Beinn an Tuirc 3, Tangy IV and to a lesser degree, the proposed development in sequential views) to No View and Not Significant. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.

Recreational Route	Assessment
National Recreational Routes (within 45km)	
	<u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> The route would go through Killean at Loch na Naich (High to Zero magnitude). The route would also pass near to the application West Torrisdale Wind Farm as it passes near Carradale (High-Medium to Zero magnitude), and the application Conc Buidhe as the route passes west of Lussa Loch (High magnitude). The additional effect of the proposed development would be reduced to Moderate to No View and Not Significant (due to the presence of other wind farms). The combined effect would be Substantial and Significant (due to Freasdail, Eascart, Deucheran Hill, Clachaig Glen, Beinn an Tuirc 3, Tangy IV, Killean, West Torrisdale, Cnoc Buidhe and to a lesser degree, the proposed development in sequential views) to No View and Not Significant. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Kintyre 66 Tourist Route	Assessed as part of the A83 in Table 6.13 as the route overlaps with this transport route. There would be no visibility of the proposed development from the section of the route which overlaps with the B842 to the east.
Arran Coastal Way	The Arran Coastal Way circumnavigates the Isle of Arran following coastal footpaths and paved roads and is one of Scotland's Great Trails. The route is 105km long and passes through most of the settlements in the island. The coastline and seascape are prevalent features along the route which includes formal beaches with parking facilities, informal beaches, and rocky coastlines. As the route passes to the west and north of the island, views are across the Sound of Kilbride towards the Kintyre peninsula. To the east of the island, views are across the Firth of Clyde towards the mainland. <u>Assessment: Proposed Development</u> ZTV coverage indicates patches of theoretical visibility as the route passes to the west of the island between Brown Head (west of Corriecravie) and north of Catacol. ZTV coverage indicates that there would be between one and six turbines visible along this section of the route. From south to north: Between Brown Head and Drumadoon Point, the route follows a path along the coastline edge - apart from a short section at Blackwaterfoot where the route follows the A841. From this section of the route the main views are along the coastline in the direction of travel across the curving coastline at Drumadoon Bay towards Drumadoon Point, and towards the central area of the Kintyre peninsula as the route approaches Drumadoon Point. Views across the Killbrannan Sound, from the beaches at Blackwaterfoot are generally oriented southwest towards Cambeltown and the southern end of the Kintyre peninsula. Northern Ireland may also be visible in clear conditions. The proposed turbines would be partially visible to the northwest as blade tips and/or a single hub (T2) at between 16km and over 20km distance (Very Low magnitude). Between Drumadoon Point and Imachar Point, the route continues to follow the coastal edge using coastal paths until Torr Rìgh Beag where the path turns inland to join the A841. Views in the direction of travel are across Machrie Bay from the south and towards Imachar point. The proposed turbines would be partially visible to the northwest and west where there would be partially visible to the northwest as blade tips and/or a single hub (T2) at between 12.5km and over 16km distance (Very Low magnitude). Viewpoint 9, Figure 6.27 illustrates views from the closest point of the route at Imachar. Between Imachar Point and Catacol the route mostly follows the A841 with sort sections following paths at Imachar and north of Catacol. There is no ZTV coverage for a section of the route between Rubha Airigh and Catacol. At Catacol the route heads inland through woodland and views would be mostly screened. Views in the direction of travel (northbound) towards Rubha Airigh are along the Arran coastline and towards the northern areas of the Kintyre peninsula. Views towards the proposed turbines would be in southbound travel

Recreational Route	Assessment
National Recreational Routes (within 45km)	
	where the Kintyre peninsular stretches along the west and southwest view. The Proposed turbines would be partially visible to the southwest and west as blade tips and/or a single hub (T2) at between 12.5km and over 21km distance (Very Low magnitude). The magnitude of change would range from Very Low to Zero and the level of effect would be Negligible 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> Many existing wind farms are visible in views, and the main ones in the direction of the proposed development would include the tips of Freasdail (Very Low to Zero magnitude) and the consented Eascairt (Very Low magnitude). Allt Dearg would also be visible from parts of the route (Very Low magnitude). Further wind farm development on the Kintyre peninsula would include the existing Cour and consented High Constellation in views west (both Low-Very Low magnitude) and Deucheran Hill (Very Low magnitude). To the southwest a cluster of Beinn an Tuirc wind farms would also be partially visible (Low-Very Low magnitude). The additional effect of the Proposed Development would be Negligible to No View and Not Significant. The combined effect of the Proposed Development would be Moderate to Minor, to No View and Not Significant (due to Cour, High Constellation and Beinn an Tuirc). The nature of these effects would be long-term (reversible) indirect, cumulative and negative to neutral. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> West Torrisdale would be visible adjacent to the proposed turbines at a minimum distance of 9.6km (Medium-Low magnitude). There would be theoretical visibility of Breackerie in views to the south of the peninsula (Very Low magnitude). Killean would also be partially visible along the route (Low-Very Low magnitude). The additional effect of the Proposed Development would be Negligible to No View and Not Significant. The combined effect would be Major to Moderate and Significant (due to West Torrisdale) to No View and Not Significant. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Local Recreational Routes	
Core Path C088 Campbeltown to Cloanaig (i, k, and l)	Assessed as part of the Kintyre Way above. Core path C088 (sections j, k and l) pass between Saddell and Skeroblinraid via Lussa Loch.
Core Path C094 Tayinloan – Carradale East- West Link (b)	Assessed as part of the Kintyre Way above. Core path C088 (section b) passes between Killean and Auchenbrek via Loch na Naich.
Core Path C304 – Glenbarr School Route	Core Path C304 follows the A83 along a roadside pavement between the main settlement of Glenbarr and Glenbarr primary school (0.8km). The road is elevated along this section and there are views west towards the seascape and Gigha as well as views east along Barr Glen from the southern part of the route. <u>Assessment: proposed development</u> ZTV coverage indicates theoretical visibility for the southern half of the route between Glenbarr War Memorial and the main settlement (0.4km) of Glenbarr. Visibility of between seven and nine turbines is indicated along this section. Views towards the proposed turbines would be orientated inland along Barr Glen where all of the turbines would be visible on the skyline of the view with the lower towers of the majority of the turbines screened by intervening landform. Views from this section of the route are illustrated in Viewpoint 3, Figure 6.21 (High-Medium magnitude), although the A83 and footpath are located at a slightly lower elevation to the west of the memorial and there would be some screening

Recreational Route	Assessment
National Recreational Routes (within 45km)	
	from foreground landform and scrub vegetation. From the northern end of the route as it nears the school there may glimpsed views of the Northern access track option as it passes to the fore of an agricultural building and wooded slope (Very Low magnitude). The magnitude of change would range from High-Medium to Zero and the level of effect would be Substantial to Major and Significant (southern half of the route for around 0.4km) to Minor (northern end of the route) to No View and Not Significant 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 proposed development would be visible behind Blary Hill Wind Farm (approximately 3.5km distance) (High-Medium magnitude), and to the fore of Beinn an Tuirc I, partly screened by landform (Low magnitude). Auchadaduie is visible in the same view at approximately 2.4km (High-Medium magnitude). Hubs and blades of Tangy I and II are visible above intervening forest to the south (Very Low magnitude), Gigha community Wind farm is visible in clear conditions to the northwest (Very Low magnitude). Tangy IV Repower would be partly visible as hubs and blades beyond forestry to the south (Low magnitude). The additional effect of the proposed development would be reduced to Major to Moderate and Significant (southern half of the route for around 0.4km) (reduced due to other wind farms) to No View and Not Significant. The combined effect would be Substantial to Major and Significant (due to Blary Hill, Auchadaduie, and the proposed development) to No View and Not Significant. Blary Hill and Auchadaduie would be decommissioned between ~16-19 years prior to the end of the operational period of the proposed development, 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> Cnoc Buidhe would be partly visible to the south and southeast at ~3.8km (High-Medium magnitude). Killean would be theoretically visible as blades to the northeast (Very Low magnitude). West Torrisdale would be theoretically visible as blades and tips behind the Proposed Development (Very Low magnitude). Breackerie would be visible to the south in clear conditions (Very Low magnitude). The additional effect of the proposed development would be reduced to Major to Moderate and Significant (southern half of the route for around 0.4km) (reduced due to other wind farms) to No View and Not Significant. The combined effect would be Substantial to Major and Significant (due to Blary Hill, Auchadaduie, Cnoc Buidhe and the proposed development) to No View and Not Significant. Blary Hill and Auchadaduie would be decommissioned between ~16-19 years prior to the end of the operational period of the proposed development, reducing the cumulative effect. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.

Visual Effects on Views from Recreational and Tourist / Visitor Attractions

- 6.254 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.

- 6.255 In summary, there would be a significant effect on one receptor at Glenbarr War Memorial, although the primary views westwards out to sea would be unaffected by the proposed development. None of the remaining tourist / visitor attractions would be significantly affected by the proposed development.

Table 6.15: Visual Effects on Views from Key Recreational and Tourist / Visitor Attractions

Recreational and Tourist Destination	Assessment
Glenbarr Memorial	Views from Glenbarr Memorial are assessed as part of Viewpoint 3 within Appendix 6.2 and illustrated in Figure 6.21. In summary, the magnitude of change would be High-Medium and the level of effect would be Substantial to Major and Significant. The nature of these effects would be long-term (reversible), indirect and negative.
Glenbarr Abbey	Glenbarr Abbey is located to the south of the settlement of Glenbarr on the lower slopes of the Barr Glen. Woodland surrounds Glenbarr Abbey to the north, east and south, with the main open aspects to the south across Barr Water and to the southwest along the glen. There are fewer windows on the east elevation facing the proposed turbines reflecting the reduced importance of views in this direction. The Abbey contains a museum and is open to the public. <u>Assessment: proposed development:</u> ZTV coverage indicates theoretical visibility of between 7-9 turbines from the abbey building with visibility reducing to 1-3 turbines from the grounds to the south of the building along the glen floor. Wireline analysis indicates that all nine turbines would be theoretically visible at ~5.6km distance to the east mostly as hubs and blades beyond the intervening glen sides and beyond other existing turbines. Views in this direction are heavily screened by mature woodland and at most there would be filtered winter views (Very Low to Zero magnitude). 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> Auchadaduie and Blary Hill wind farms would be visible to the fore of the proposed turbines and Beinn an Tuirc I would be theoretically visible behind the proposed turbines in heavily filtered winter views (Very Low to Zero magnitude). There may also be heavily filtered views of the consented Tangy IV repower to the south (Very Low magnitude). The additional and combined effect of the proposed development would remain Minor to No View and Not Significant. The nature of these effects would be long-term (reversible) indirect, cumulative and neutral. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> There would be filtered views of Cnoc Buidhe to the southeast with potential views of partial blades above the treeline at ~3.4km distance (Medium-Low magnitude reducing to Low in summer views). The additional effect of the proposed development would remain Minor to No View and Not Significant. The combined effect would be Major to Moderate / Moderate and Significant (due to Cnoc Buidhe). The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Carradale Point	Views from Carradale Point are assessed as part of Viewpoint 7 within Appendix 6.2 and illustrated in Figure 6.25.

Recreational and Tourist Destination	Assessment
	In summary, the magnitude of change would be Very Low and the level of effect would be Minor and Not Significant. The nature of these effects would be long-term (reversible), indirect and neutral.
Deer Hill (Cnoc nan Gabhar)	Views from Deer Hill (Cnoc nan Gabhar) are assessed as part of Viewpoint 5 within Appendix 6.2 and illustrated in Figure 6.23. In summary, the magnitude of change would be Low - Very Low and the level of effect would be Moderate to Minor and Not Significant. The nature of these effects would be long-term (reversible), indirect and negative to neutral.

Summary of Residual Landscape and Visual Effects

6.256 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' and '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 and one Pre-Application Wind Farm): 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 6.16: Summary of Residual 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: western unit of the Upland Forest Moor Mosaic LCT (6)									
Construction Effects: 6 Upland Forest Moor Mosaic LCT	Medium	Zero to High	None to Major	Cumulative effects would increase from None at the start of construction to the operational levels of Major (primarily due to Beinn an Tuirc, Blary Hill, Auchadaduie, West Torrisdale and the PD). Other wind farms slightly further afield would also result in significant effects including Cour, Clachaig Glen, Tangy I / II, IV Repower, Killeen and Cnoc Buidhe.					
Operational Effects: 6 Upland Forest Moor Mosaic LCT	Medium	High (within 2-3km) to Zero	Major (within 2-3km) to None	High to Zero	Moderate (within 2-3km) to None	Major (PD, and other wind farms noted above) to None	High to Zero	Moderate to Minor, to None	Major (PD, and other wind farms noted above) to None
Decommissioning Effects: 6 Upland Forest Moor Mosaic LCT	Medium	Very Low	Negligible	The residual cumulative effects post decommissioning would be Negligible.					
Indirect Landscape Effects on the Surrounding Landscape Character									
20 Rocky Mosaic LCT: Unit A: West coastline	Medium	Medium-Low to Zero	Moderate to Minor, to None	Medium / Medium-Low to Zero	Minor	Moderate	Medium / Medium-Low to Zero	Negligible	Moderate

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:
20 Rocky Mosaic LCT: Unit B: Carradale	Medium	Very Low to Zero	Minor to Negligible, to None	Low-Very Low to Zero	Minor to Negligible, to None	Minor to None	Medium / Medium-Low to Zero	Negligible to None	Moderate to Minor
Indirect Landscape Effects on Landscape Character within North Arran NSA									
Arran Raised Beach Coast LCT (1b) (59 SNH)	High-Medium	Very Low to Zero	Minor to None	Very Low to Zero	Negligible to None	Minor to None	Low to Zero	Negligible to None	Moderate to Minor, to None
Arran Rugged Granitic Uplands LCT (21b) (83 SNH)	High-Medium	Very Low to Zero	Minor to None	Very Low to Zero	Negligible to None	Minor to None	Low to Zero	Negligible to None	Moderate to Minor, to None
Coastal Lowland Moor LCT (6) (65 SNH)	High-Medium	Very Low to Zero	Minor to None	Very Low to Zero	Negligible to None	Minor to None	Low-Very Low to Zero	Negligible to None	Minor to None
Coastal Headlands LCT (4a) (62 SNH)	High-Medium	Very Low to Zero	Minor to Negligible, to None	Very Low to Zero	Negligible to None	Minor to Negligible to None	Low to Zero	Negligible to None	Minor to Negligible to None
Effects on Landscape Planning Designations									
North Arran NSA (incorporating North Arran SLA)	High	Low-Very Low to Zero	Moderate to Minor	Low-Very Low to Zero	Moderate to Minor	Moderate to Minor	Low to Zero	Minor	Moderate (West Torrisdale)

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

Table 6.17: Summary of Residual 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 within 10km									
Glenbarr	High	Medium to Zero	Major (eastern and northern edge) to No View	High-Medium to Zero	Major to Moderate to No View	Substantial to Major (Blary Hill, Auchadaduie and to a lesser degree, PD) to No View	High-Medium to Zero	Major to Moderate to No View	Substantial to Major (PD, Blary Hill, Auchadaduie, Cnoc Buidhe and to a lesser degree, PD) to No View
Visual Effects on Transport (within 10km) and Ferry Routes (within 45km)									
A83 / Kintyre 66 Tourist Route	High (all road users)	Medium to Zero	Major (<1km) to No View	High-Medium to Zero	Major to Moderate to No View	Substantial to Major to No View (PD, Blary Hill, Auchadaduie)	High-Medium to Zero	Major to Moderate to No View	Major to No View (PD, Blary Hill, Auchadaduie, Cnoc Buidhe, Killean)
Barr Glen Road (Unclassified Road)	Medium	High-Medium	Major to Moderate (3.2km) to Moderate to Minor (1.1km)	High	Moderate	Substantial to Major (PD, Blary Hill, Auchadaduie)	Medium	Moderate	Substantial to Major (PD, Blary Hill, Auchadaduie, Cnoc Buidhe)
Tayinloan – Gigha Ferry	High	Low to Zero	Moderate to Minor, to No View	Medium-Low	Minor to No View	Major to Moderate (Clachaig Glen)	Medium	Minor to No View	Major (Clachaig Glen, Killean)

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:
Kennacraig – Port Ellen / Port Askaig Ferry	High	Very Low to Zero	Minor to Negligible, to No View	Low to Zero	Negligible to No View	Moderate to No View (Clachaig Glen)	Low to Zero	Negligible to No View	Moderate to No View (Clachaig Glen, Killean)
Claonaig - Lochranza Ferry	High	Very Low to Zero	Negligible to No View	Medium to Zero	Negligible to No View	Major (Eascairt, High Constellation)	Very Low to Zero	Negligible to No View	Major (Eascairt, High Constellation)
Tarbert - Lochranza Ferry	High	Very Low to Zero	Negligible to No View	Low to Zero	Negligible to No View	Moderate (Eascairt, High Constellation)	Very Low to Zero	Negligible to No View	Moderate (Eascairt, High Constellation)
Visual Effects on Recreational Routes – National routes within 45km									
The Kintyre Way (overlapped with C088, C094 and other Core Paths)	High	Medium -Low (Medium if forest felled) to Zero	Major to Moderate (Major) (~1km) to No View	High to Zero	Moderate to No View	Substantial (PD and other wind farms) to No View	High to Zero	Moderate to No View	Substantial (PD and other wind farms) to No View
Arran Coastal Way	High	Very Low to Zero	Negligible to No View	Low-Very Low	Negligible to No View	Moderate to Minor, to No View	Medium-Low to Zero	Negligible to No View	Major to Moderate (West Torrisdale) to No View
Visual Effects on Recreational Routes – Local routes within 10km									
Core Path C304 – Glenbarr School Route	High	High-Medium to Zero	Substantial to Major (~0.4km) to No View	High-Medium to Zero	Major to Moderate to No View	Substantial to Major (PD, Blary Hill,	High-Medium to Zero	Major to Moderate to No View	Substantial to Major (PD, Blary Hill, Auchadaduie,

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:
						Auchadaduie) to No View			Cnoc Buidhe) to No View
Visual Effects on Recreational and Tourist / Visitor Attractions									
Glenbarr Memorial See Technical Appendix 6.2, Viewpoint 3									
Glenbarr Abbey	High	Very Low to Zero	Minor to No View	Low-Very Low	Minor to No View	Minor to No View	Medium-Low	Minor to No View	Major to Moderate (Cnoc Buidhe)
Carradale Point See Technical Appendix 6.2, Viewpoint 7									
Deer Hill (Cnoc nan Gabhar) See Technical Appendix 6.2, Viewpoint 5									

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

Summary and Conclusions

- 6.257 The proposed development comprises nine wind turbines up to a maximum height of 200m (four turbines) and 230m (five turbines) to blade tip and associated infrastructure, including aviation lighting, located approximately 5.6km east of Glenbarr within an undesignated area of the *Upland Forest Moor Mosaic* landscape character. It is located on the central and upland spine of the Kintyre peninsula surrounded by existing wind farms to the east, west and south. Infrastructure associated with the proposed development includes one site entrance (via either a 'northern access route' from the A83 avoiding the Barr Glen minor road, or a 'southern access route' utilising the existing wind farm access tracks from Barr Glen minor road), internal access tracks and hardstanding areas, crane pads, one temporary construction compound, and grid connection infrastructure (including one on-site substation and underground cables linking the turbines to the substation).
- 6.258 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

- 6.259 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 and the Argyll and Bute LDP 2, (adopted 2024) including the ABLWECS.

Consultation

- 6.260 Consultation has been undertaken with ABC and NS who commented on the aspects of methodology, sources of information, scope of assessment and cumulative development. Post-scoping consultation was also undertaken with ABC 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

- 6.261 The design of the proposed development has evolved from an iterative design and assessment process that has been guided by ABWLECS and NS's *Siting and Designing Windfarms in the Landscape*. The advice in the ABLWECS 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 12 to 9 and reducing the horizontal extent of the proposed development.

- 6.262 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.
- 6.263 A key consideration for the proposed development was the landscape character and expansive scale and simplicity of the host *Upland Forest Moor Mosaic* LCT which has a reduced susceptibility to very 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.
- 6.264 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 12 turbine layout was established by taking account of a 1.5km buffer from the nearest inhabited residential properties with the site location being removed from any landscape designations;
 - The layout has 'pulled back' some of the turbines from the northwest and east where they would be more visible from Barr Glen, the east coast of Kintyre and the Isle of Arran, particularly western coastal locations. Visibility from the A83 (Kintyre 66 Tourist Route) is also limited as a result of this pull back. This has also resulted in the location of the turbines being on the central upland spine of the Kintyre peninsula;
 - Three turbines were removed from the original layout and the turbine height was selected in response to the landscape scale, character and 'fit' with other wind farm development, with the turbine height of five turbines set at 230m and the remaining four turbines at 200m to blade tip;
 - Special attention was paid to the extent of visibility of the turbines from the west coast of Arran which has minimised hub visibility and reduced the presence of aviation warning lights;

- Special attention was also paid to the visual composition of the turbines and the cumulative appearance of the proposed development alongside Blary Hill and Beinn an Tuirc wind farms. It is to be noted that subject to its extension, Beinn an Tuirc I is likely to be decommissioned in the same year as the start of the construction phase of the proposed development, thereby reducing the cumulative effect; and
- Design consideration was also given to the cumulative design of the neighbouring wind farms including Blary Hill and Beinn an Tuirc which create one 'wind farm group' or cluster.

Landscape and Cumulative Landscape Effects

- 6.265 The proposed development is not located within any designated landscapes or WLAs and there would be no significant effects on the special landscape qualities of the North Arran NSA or any of the locally designated LLAs in Argyll.
- 6.266 However, 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' *Upland Forest Moor Mosaic* landscape, affecting a local area within approximately 2 – 3km of the proposed turbines mainly to the north, northwest and northeast. There would be no significant effects to the west, southwest, east, south and southeast due to the presence of the existing Blary Hill and Beinn an Tuirc I, II and III wind farms which already have an influence on this part of the LCT. This level of effect, and geographical extent, is not unusual for wind farm development.
- 6.267 There would be no significant effects on any of the surrounding LCTs.

Visual and Cumulative Visual Effects

- 6.268 The viewpoint analysis indicates that significant visual effects are likely to affect limited locations within approximately 6.3km distance from the proposed development (subject to a clear view of the proposed turbines, landform and vegetation screening), as indicated by viewpoints 1-4 inclusively. The greatest magnitude of change is visible at Viewpoint 1 (High) and Viewpoints 2-3 (High-Medium) (all other viewpoints are assessed as of Medium-Low magnitude or less). It may be noted that the visual composition of the proposed development presents as a simple and cohesive wind farm set within a large-scale landscape where there is a strong visual rationale for its location on the 'central spine' of the Kintyre peninsula, adjacent to an existing cluster of wind farm development comprising Beinn an Tuirc I / II and Blary Hill, with Beinn an Tuirc III and Auchadaduie located slightly further afield. The effects on viewpoints 1-4 would also be cumulative. There would be no significant visual effects from the east (including the Isle of Arran), northeast, southeast, south and southwest of the proposed development. This also includes no significant effects from the Isles of Gigha, Jura and Islay further to the northwest.

Visual Effects on Settlements and Residential Properties

- 6.269 There would be significant effects on the views from the northern and eastern edges of the settlement at Glenbarr.

- 6.270 A Residential Visual Amenity Assessment (RVAA) has been conducted for those properties within approximately 3km of the proposed development. The results of the RVAA are reported in Appendix 6.3 and confirm that although the views from five of the six properties would be significant, none of the properties would breach the residential visual amenity threshold.

Visual Effects on Transport Routes

- 6.271 Significant visual effects would be limited to sections of two transport routes:
- Up to approximately 1km of the A83 (also Kintyre 66 Tourist Route) between Glenbarr War Memorial and the junction south of Glenbarr; and
 - Up to approximately 3.2km of the Barr Glen unclassified road for eastbound users (and temporary significant effects as a result of the southern route option).
- 6.272 None of the remaining transport routes (including all ferry routes) would be significantly affected by the proposed development.

Visual Receptors: Recreational Routes

- 6.273 There would significant visual effects from parts of the following two recreational routes:
- Kintyre Way (overlapped with Core Path C094b); and
 - Core Path C304 (southern section of the route for around 0.4km).
- 6.274 There would be no significant visual effects on the views from any other recreational routes within the Study Area.

Visual Effects on Views from Recreational and Tourist / Visitor Attractions

- 6.275 There would be significant visual effects on one receptor at Glenbarr War Memorial, although the primary views westwards out to sea would be unaffected by the proposed development. None of the remaining tourist / visitor attractions would be significantly affected by the proposed development.

Night-time Assessment on Aviation Warning Lights

- 6.276 The Lighting Strategy for the proposed development has been approved by the CAA and requires four of the nine turbines to be lit (T1, T2, T5 and T8).
- 6.277 A full night-time assessment of the aviation warning light effects is provided in Technical Appendix 6.4. It has concluded that there would be no significant night-time effects on landscape character or designations and no significant night-time effects on the views from visual receptor location where people are likely to be present at night.
- 6.278 The Lighting Strategy for the aviation warning lights would result in no significant night-time effects.

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Allt Domhain Wind Farm

Environmental Impact Assessment Report Volume 1 Chapter 7: Ecology

June 2025

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7 ECOLOGY

Introduction

- 7.1 This chapter considers the potential effects of Allt Domhain Wind Farm (the 'proposed development') on Ecology.
- 7.2 This chapter is also supported by the following figures as contained within Volume 2: Figures:
- Figure 7.1: Site Layout and Survey Areas;
 - Figure 7.2: UKHab Mapping Results;
 - Figure 7.3: NVC Mapping Results;
 - Figure 7.4: Potential GWDTEs ;
 - Figure 7.5: Protected Species Survey Results (Confidential); and
 - Figure 7.6: Bat Cumulative Assessment
- 7.3 The chapter is supported by a number of Technical Appendices (as set out within Volume 4: Technical Appendices), comprising:
- Technical Appendix 7.1: Protected Species Survey Report (Confidential);
 - Technical Appendix 7.2: Bat Survey Report;
 - Technical Appendix 7.3: Fish Survey Report – Main Wind Farm Site;
 - Technical Appendix 7.4: Fish Survey Report – Access Track Site;
 - Technical Appendix 7.5: Habitats and Groundwater Dependent Terrestrial Ecosystem Survey Report; and
 - Technical Appendix 7.6: Outline Habitat Management Plan and Biodiversity Enhancement Report.
- 7.4 All staff who have contributed to fieldwork and/or reporting for this chapter and all technical appendices hold an undergraduate or higher postgraduate degree in relevant subjects, have appropriate and relevant experience for the role they undertook in preparing this EIA Report and hold relevant professional membership (e.g., the Chartered Institute of Ecology and Environmental Management (CIEEM)).
- 7.5 Where relevant, all Figures and Technical Appendices are referenced within the text. The naming of species used in this chapter follows common names except where no common name is typically used. Full scientific names and comprehensive species lists are provided in the Technical Appendices.

Legislation, Policy and Guidance

- 7.6 The ecology assessment has been written with cognisance to relevant legislation, policy and guidance, notably the following:

Legislation

- Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and Wild Flora and Fauna (the Habitats Directive);
- The Wildlife and Countryside Act 1981 (as amended) (WCA);
- Scottish Government (2019) EU Exit Habitat Regulations Scotland;
- The Wildlife and Natural Environment (Scotland) Act 2011 (as amended) (WANE Act);
- Nature Conservation (Scotland) Act 2004 (as amended) (NCA);
- The Protection of Badgers Act 1992 (as amended);
- The Water Environment (Controlled Activities) (Scotland) Regulations 2013 (as amended) (CAR); and
- Salmon and Freshwater Fisheries Act 2003.

Policy

7.7 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 Argyll and Bute Local Development Plan 2 (LDP2) (Argyll and Bute Council, 2024), relevant aspects of NPF4 (National Planning Framework 4)(2023), Planning Advice Notes and other relevant guidance.

- NPF4 Policy 1: Tackling the climate and nature crises;
- NPF4 Policy 3: Biodiversity;
- NPF4 Policy 4: Natural Places;
- NPF4 Policy 5: Soils;
- NPF4 Policy 6: Forestry, woodland and trees;
- LDP2 Policy 73: Development Impact on Habitats, Species and Biodiversity;
- LDP2 Policy 74: Development Impact on Sites of International Importance;
- LDP2 Policy 75: Development Impact on Sites of Special Scientific Interest (SSSIs) and National Nature Reserves;
- LDP2 Policy 76: Development Impact on Local Nature Conservation Sites (LNCS);
- LDP2 Policy 77: Forestry, Woodland and Trees;
- LDP2 Policy 78: Woodland Removal;
- LDP2 Policy 79: Protection of Soil and Peat Resources;
- Scottish Biodiversity Delivery Plan 2024-2030 (Scottish Government, 2024a); and
- Scottish Biodiversity Strategy (Scottish Government, 2024b).

Guidance

- Advising on Peatland, Carbon-rich Soils and Priority Peatland Habitats in Development Management (NatureScot, 2023);
- Argyll and Bute Biodiversity Action Plan 2010 – 2015 (Argyll and Bute Council, undated);

- Argyll and Bute Council Biodiversity Technical Note (Argyll and Bute Council, 2017);
- Argyll and Bute Local Biodiversity Duty Action Plan 2016-2021 (Argyll and Bute Council, 2016);
- Bats and onshore wind turbines - survey, assessment and mitigation (NatureScot, 2021);
- Good Practice During Wind Farm Construction (NatureScot, 2024a);
- Guidance on Assessing the Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems (SEPA, 2024);
- Guidelines for Ecological Impact Assessment (EcIA) (CIEEM, 2018);
- Monitoring watercourses in relation to onshore wind farm developments: generic monitoring programme (Scottish Government, 2021);
- Planning and development: standing advice and guidance documents – Protected Species (NatureScot, 2025);
- Scottish Biodiversity List (Scottish Government, 2020); and
- UK Biodiversity Action Plan¹ (BAP) (UK Government, 1994).

Likely Significant Effects During Construction

7.8 If left unmitigated, the following potential effects to ecological receptors during the construction phase of the proposed development have been identified:

- Permanent loss of habitat, including potentially peatland forming ones, from construction of permanent components (tracks, turbine foundations and substations);
- Temporary loss of habitat from construction of temporary components (construction compound);
- Permanent indirect habitat changes to habitats within a 10m buffer of the proposed development footprint;
- Disturbance to protected species, namely bat species and otter, during construction activities, including from construction lighting if night-time working is required;
- Pollution of the aquatic environment during construction affecting watercourses and their associated species; and
- Traffic related mortalities to mammal species.

Likely Significant Effects During Operation

7.9 The following potential effects caused during the operational phase of the proposed development have been identified:

- Modification of habitats due to longer term hydrological change;
- Direct impacts such as bats colliding with turbine blades or suffering barotrauma;
- Fragmentation of species ranges or habitats;
- Pollution of the aquatic environment during operational maintenance; and,
- Disturbance from Site traffic, turbine operation, increased human presences.

¹ Although the UK BAP has been superseded since publication, it still provides a useful reference of Priority Species and Habitats within the UK.

Consultation

- 7.10 A summary of the issues raised during consultation activities undertaken to date specific to biodiversity and terrestrial ecology are presented in Table 7.1, together with how these issues have been considered in the production of this assessment.

Table 7.1: Consultation Responses

Consultee	Date Received	Details/Issues Raised
Argyll and Bute Council Local Biodiversity Officer (LBO)	30 March 2021	The LBO notes the contents of the Scoping Report along with the following surveys: Phase 1 Habitat Survey Results; Ornithology Survey Areas; and Cumulative Developments. The LBO notes that the position of the turbine and access route has yet to be determined. In summary: the LBO requests the following: The applicant assesses the cumulative effects on the ornithological interest and both European and Protected Species in terms of this proposal and the adjacent wind farms. Further information on the location of the borrow pits and advise that peat .5m in depth should be avoided. A restoration plan should accompany all pits. The LBO notes that the applicant has outlined inbuilt mitigation in advance of the findings of the ecological surveys, the specific application of this mitigation will need to be identified in the survey reports. The LBO welcomes the employment of an ECoW and the drafting of a CEMP. Deep peat is more than 0.5m; in terms of the location of the access route and location of the footings of the turbines and the associated works compounds and buildings, the LBO asks that the applicant liaises with NatureScot as the lead A7 8 authority on peatlands and who manage the National Peatland Action Plan and Peatland Action grant.
Argyll District Salmon Fishery Board	07 April 2021	Scottish salmon rivers are categorised by Marine Scotland Science under the salmon conservation regulations according to the likelihood of them meeting their conservation limits. The gradings of rivers have been published for 2021. 104 rivers across Scotland, including the River Barr, are graded as Category 3, meaning there is a less than 60% probability of meeting their conservation limit. Salmon and other freshwater fish, including brown trout and European eel, face a range of pressures, some of which are under human control. The proposed new wind farm will potentially affect fish habitats in a major tributary of the River Barr. Therefore, Argyll DSFB recommend that the developer need to identify and mitigate for any additional pressures resulting from the development. Additional pressures may arise from a number of activities related to the development of infrastructure including groundworks for

Consultee	Date Received	Details/Issues Raised
		roads and turbine based causing water quality issues and potential for stream crossings to create obstacles to fish passage. The developer, therefore, need to identify the current distribution of fish in the Abhainn a' Chnocain and its tributaries as well as the main channel of the River Barr, existing constraints acting on fish populations and establish a baseline of monitoring sites upon which fish populations and their habitat may be assessed pre and post development.
Fisheries Management Scotland	31 March 2021	FMS act as a convenient central point for Scottish Government and developers to seek views on local developments. However, as we do not have the appropriate local knowledge, or the technical expertise to respond to specific projects, we are only able to provide a general response with regard to the potential risk of such developments to fish, their habitats and any dependent fisheries. Accordingly, our remit is confined mainly to alerting the relevant local DSFB/Trust to any proposal. Due to the potential for such developments to impact on migratory fish species and the fisheries they support, FMS have developed, in conjunction with Marine Scotland Science, advice for DSFBs and Trusts in dealing with planning applications. We would strongly recommend that these guidelines are fully considered throughout the planning, construction and monitoring phases of the proposed development.
NatureScot	12 April 2021	We agree with the identification of habitats and species of conservation concern to be scoped in. Any new access tracks should be subject to appropriate ecological surveys and assessment. If track widening works are required then ecological surveys should also be conducted in those areas if there is a possibility of protected species or habitats being present. Bellochantuy and Tangy Gorges SSSI does not feature in the scoping report. As access to the development site is yet to be finalised, it is possible for the southern access to affect this SSSI. It should therefore be scoped in. We note that Phase 1 survey has been completed for the whole site, which will inform NVC survey to be undertaken during 2021. This will be especially relevant in regard to peatland habitat which, depending on its condition and extent, may be of national importance. We advise that the siting of turbines and associated infrastructure on areas of nationally important peatland and areas of deep peat, should be avoided as far as possible. The EIA should demonstrate that any significant effects have been substantially overcome by siting, design or other mitigation. Details of all mitigation, including a peatland management plan and a habitat management plan, should be included in the EIA.

Assessment Methodology

Study Area

- 7.11 The following geographic definitions are used within this chapter to describe the proposed development and associated study areas (Table 7.2).

Table 7.2: Definitions

Term	Definition
The proposed development	Refers to the wind farm infrastructure and the whole process involved with the lifetime of Allt Domhain Wind Farm including construction, operation and decommissioning.
The Site	The Site comprises the area encompassed by the application boundary, containing turbines, associated infrastructure as well as access track options.
The Main Wind Farm Site	The core area within the Site containing the primary components of the proposed development. This includes the turbines and associated turbine infrastructure, as well as the substation, compound and On Site tracks.
The Access Track Site	Forms part of the application boundary and comprises two route options under consideration to provide access to the Main Wind Farm Site.
The Survey Area	The area within which any desk study or ecological survey has been undertaken. This area varies depending on the nature of the survey being undertaken, and these are detailed within the associated technical appendices.

- 7.12 Allt Domhain Wind Farm Site is situated on the Kintyre peninsula, with the Main Wind Farm Site centred on grid reference NR 73130 36762, approximately 6km east of Glenbarr. The present land use mainly comprises of open moorland, surrounded by a mix of commercial conifer forestry and operative wind farms such as Beinn an Tuirc 1 to the east, Beinn an Tuirc 2 Wind Farm to the southeast, Blary Hill Wind Farm to the west and Auchadaduie to the west of Blary Hill.
- 7.13 The core of the wind farm Site is set within the lower section of the west-facing slope of the local hills, Cnoc Donn (405m Above Ordnance Datum (AOD)) and Beinn an Tuirc (454m AOD). The surrounding upland landscape of the wind farm is dominated by rolling hills of open moorland and forestry plantation, dissected by minor watercourses and rivers. The existing access track into the Main Wind Farm Site; which crosses the Barr Water, Abhainn a' Chnocain and several minor tributaries; is predominantly surrounded by arable and grazing fields with open moorland, forestry plantation and rolling hills beyond.
- 7.14 There are a number of watercourses within the Main Wind Farm Site including Allt a' Bhlair, Allt Domhain and Allt an Tuirc, which flow west to east towards the valley floor, where they enter Abhainn a' Chnocain. Abhainn a' Chnocain flows into the Barr Water north of the Main Wind Farm Site. In addition to Abhainn a' Chnocain and the Barr Water, the Access Track Site crosses several minor watercourses, including Allt an Uamha and multiple unnamed tributaries of the Barr Water.

- 7.15 Settlement within the wider area is relatively sparse, with some small settlements, farms, and scattered residential properties located predominately to the western side of the site. Within 5km of the Site, the small village of Glenbarr is located to the west, and hamlets Bellochantuy and Muasdale are situated to the south-west and north-west of the Site, respectively. Other small villages within 10km of the Site include Carradale to the east, and Tayinloan to the north-west.
- 7.16 The nearest trunk road, the A83, passes Tayinloan and Glenbarr and terminates in Campbeltown. An unclassified minor road from Glenbarr extends northwest ('known locally as the Barr Glen road'), following the north bank of the Barr Water before ending at Arnicle Farm.

Desk Based Study and Data Sources

- 7.17 RPS undertook desk studies before the commencement of all ecological surveys to identify statutory designated nature conservation sites within 2km of the Site boundary and to identify all known records of important ecological receptors within a 2km (all ecological receptors) or 10km (bat species only) buffer of the Site within the last ten years. RPS sourced data from Argyll Biological Records Centre (ABReC), NatureScot's SiteLink website (NatureScot, 2020) and Ordnance Survey (OS) maps.
- 7.18 Sites designated for geological interest were excluded, and sites relating to ornithology are considered in Chapter 8: Ornithology.

Field Surveys

- 7.19 Field surveys for habitats and protected species were undertaken for the proposed development between 2018 and 2025 (Table 7.3).
- 7.20 Field surveys of the Main Wind Farm Site were predominantly undertaken in 2022 and 2023, although habitat mapping was completed in a small area of the Main Wind Farm Site in March 2025, due to a change in the application boundary since the previous habitat mapping surveys.
- 7.21 Field surveys of the Access Track Site were undertaken between November 2024 and March 2025.

Table 7.3: Summary of field surveys for the proposed development

Survey	Date
Main Wind Farm Site	
Phase 1 Habitat	September 2018
Phase 1 Habitat and NVC	November 2022
NVC and UKHab	March 2025
Terrestrial protected species	May and June 2023
Daytime bat walkover and ground level tree assessment	May and August 2023
Bat static detector deployments	May to September 2023

Survey	Date
Fish population and fish habitat	October 2023
Access Track Site	
NVC and UKHab	November 2024, February and March 2025
Terrestrial protected species	February and March 2025
Daytime bat walkover and ground level tree assessment	March 2025
Fish population, freshwater pearl mussel assessment, fish habitat	September 2024

Habitats

- 7.22 A Phase 1 Habitat survey was undertaken on 8th September 2018 of the Main Wind Farm Site at that time and updated between the 5th and 11th November 2022 during a National Vegetation Classification (NVC) survey of the Main Wind Farm Site. In March 2025, NVC and UKHab surveys were undertaken on land to the east within the Main Wind Farm Site, where the application boundary had since been extended.
- 7.23 In November 2024, February 2025 and March 2025, NVC and UKHab surveys were undertaken on the Access Track Site. These surveys aimed to map and describe the habitats crossed by the two proposed access track options.
- 7.24 All surveys undertaken followed published guidance (JNCC, 2010; Rodwell, 2006; UKHab Ltd., 2023), and botanical nomenclature in this report follows that of Stace (2010). Full methods are presented in Technical Appendix 7.5 Habitats and Groundwater Dependent Terrestrial Ecosystem Survey Report.
- 7.25 Following the results of the NVC surveys, RPS assessed GWDTE potential using 'Guidance on Assessing the Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems' (SEPA, 2024). A further 'hydro-ecological' assessment was undertaken using available datasets whereby water supply pathways for these habitats were investigated to determine the likelihood of whether these potential GWDTEs were groundwater dependent or not. It should be noted that additional hydrological assessment using available datasets on the geological and topographical context and information from site ground investigation is required to fully understand the groundwater context, post-consent. However, sufficient information is currently available to complete the hydro-ecological assessment and inform the ecological impact assessment.

Protected Species

- 7.26 RPS ecologists undertook a walkover of the Main Wind Farm Site for protected species surveys in May and June 2023. In February and March 2025, further walkover surveys for protected species were undertaken on the Access Track Site to assess the areas of the application boundary, including species-specific buffers, not captured in the 2023 surveys. The survey area encompassed the application boundary and a buffer of up to

250m to assess the presence or likely presence of protected species. Full methods are presented in Technical Appendix 7.1.

Bats

- 7.27 RPS undertook a Daytime Bat Walkover (DBW) and Ground Level Tree Assessment (GLTA) between May and August 2023 on the Main Wind Farm Site, to identify any potential for roosting bat species. In March 2025, further DBW and GLTA surveys were undertaken on the Access Track Site. Full methods are presented in Technical Appendix 7.2 Bat Technical Report.
- 7.28 RPS completed bat activity surveys, comprising of the deployment of static recorders during the main bat activity season (May to September 2023) covering the three critical activity periods: spring migration, maternity and autumn dispersal. Activity surveys followed NatureScot guidance 'Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation' (NatureScot, 2021). Full methods are presented in Technical Appendix 7.2 Bat Technical Report.

Aquatic Ecology

- 7.29 RPS undertook a fish population and habitat assessment survey in early October 2023 on the Main Wind Farm Site. Salmonid habitat was assessed, and electrofishing was conducted, following the Scottish Fisheries Co-Ordination Centre (SFCC) methodology (SFCC, 2021). Habitat suitability for freshwater pearl mussels (*Margaritifera margaritifera*) was also undertaken. Full methodology and results are presented in Technical Appendix 7.3 Fish Survey Report – Main Wind Farm.
- 7.30 The Argyll Fisheries Trust (AFT) undertook a fish and freshwater pearl mussel (FWPM) assessment survey on behalf of RPS in September 2024 on watercourses within the Access Track Site. Salmonid habitat was assessed following SFCC methodology (SFCC, 2007), and habitat that was potentially suitable for freshwater pearl mussels was assessed using Nature Scot guidance (NatureScot, 2018). Additionally, fish population surveys were undertaken according to protocols developed for the National electrofishing Programme for Scotland (Malcolm *et. al.*, 2019). Full methodology and results are presented in Technical Appendix 7.4 Fish Survey Report – Access Track.

Assessment of Significance

- 7.31 The following section explains the criteria used to assess the importance of ecological receptors and the criteria used to predict the likely significant environmental effects on the identified receptors within the Survey Area during construction, operation and decommissioning of the proposed development.

Criteria for Evaluating Importance and Sensitivity

- 7.32 Determining the conservation importance of ecological features of interest potentially impacted by the proposed development is the first step in the assessment process. This is undertaken in a systematic way using criteria that determine whether an ecological feature is of international, national, regional, local, or negligible conservation value. The

term used to describe an ecological feature which may be affected by the Proposed Development is Important Ecological Feature (IEF).

- 7.33 CIEEM guidance (CIEEM, 2018) advises that species appearing on national lists, (e.g., Schedule 1 of the Wildlife and Countryside Act 1981 (as amended)) are not necessarily evaluated as nationally important by merely appearing on such lists. Evaluating importance should also consider the number of individuals of a species within the geographic range of the proposed development, to understand the number of a particular species likely to be affected by the proposed development.
- 7.34 The conservation importance of a species or habitat is therefore based primarily on its national status, modified by its regional (Argyll and Bute) status. This impact assessment uses a two-dimensional matrix, with UK and regional statuses as the two dimensions, to determine a species' resultant conservation status.
- 7.35 The national conservation status of species and habitats in the UK can be divided into five categories:
- **International:** Species and habitats given special protection under EU legislation listed on the EU Habitats Directive as updated to the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 following the UK's exit from the European Union;
 - **National:** Species and habitats given special protection under UK legislation e.g., Wildlife and Countryside Act 1981 (as amended);
 - **Scotland:** Species and habitats of conservation concern; Scottish Biodiversity List (SBL) Priority species or habitats (NatureScot, 2020);
 - **Regional (Argyll and Bute):** Species and habitats of some conservation concern listed in the Argyll and Bute Local Biodiversity Action Plan; and
 - **Local:** Species and habitats for which there is little or no conservation concern; species common and widespread throughout the UK.
- 7.36 The regional conservation status of IEFs can be divided into the following three categories:
- **Rare:** rare in Argyll and Bute and/or LBAP Priority Species or habitats; species for which a Species Action Plan recommends safeguarding of all sites and species with a need to protect all populations above a certain size;
 - **Uncommon:** uncommon or patchily distributed in Argyll and Bute; and
 - **Common:** common and/or widespread in Argyll and Bute.
- 7.37 The resultant conservation value of a species or habitats for the Proposed Development depends on the interaction between its UK conservation status and its conservation status in Argyll and Bute (Table 7.4).

Table 7.4: Conservation Importance of Ecological Features

National Conservation Status	Regional Conservation Status		
	Rare	Uncommon	Common
International	International / National	National	Regional
National	National	National	Regional
Scotland	National	National / Regional	Regional / Local
Regional (Argyll and Bute)	Regional	Regional	Local
Local	Regional	Local	Site

7.38 The CIEEM EclA Guidelines state that significance of effects on ecological features should be qualified with reference to the appropriate geographic scale. Therefore, to provide a framework that is consistent for both assessing the importance of ecological features and determining the significance of effects, the importance of ecological features has been described at one of five geographic scales (Table 7.5).

Table 7.5: Definitions of Sensitivity

Sensitivity	Typical Descriptors
Very High (International)	A feature (e.g., habitat or population) which is either unique or sufficiently unusual to be considered as being one of the highest quality examples in an international/national context, such that the site is likely to be designated as a site of European importance (e.g., SAC or SPA). Habitats or species that form part of the cited interest within an internationally protected site, such as those designated under the Habitats Directive (e.g., SACs) or other international convention (e.g., Ramsar site)
High (National)	Habitats or species that form part of the cited interest within a nationally designated site, such as a SSSI or National Nature Reserve. A feature (e.g., habitat or population) which is either unique or sufficiently unusual to be considered as being one of the highest quality examples in a national context for which the site could potentially be designated as a SSSI. Presence of UKBAP habitats or species, where the action plan states that all areas of representative habitat or individuals of the species should be protected, including national importance.
Medium (Regional/Argyll and Bute)	Habitats or species of regional or county importance. A feature (e.g., habitat or population), which is either unique or sufficiently unusual to be considered as being of nature conservation value from a county to regional level. Habitats or species that form part of the local-level designated sites, such as an LWS, also referred to as a non-statutory SINC or the equivalent, e.g., Ancient Woodland designation. Presence of Local Biodiversity Action Plan (LBAP) habitats or species, where the action plan states that all areas of representative habitat or individuals of the species should be protected.
Low (Local)	A feature (e.g., habitat or population) that is of nature conservation value in a local context only, with insufficient value to merit a formal nature conservation designation.
Negligible (Site)	Features of importance for the Proposed Development Site only.

Magnitude

- 7.39 The magnitude of an impact refers to the size, intensity, or volume of and should be quantified where possible in absolute or relative terms. For example, exact areas of habitat loss or percentage of species population decline (CIEEM, 2018). Table 7.6 defines the four levels of magnitude used in this assessment; these are generally considered to be adverse unless stated otherwise.

Table 7.6: Magnitude of Potential Effects

Level of Magnitude	Criteria
High	Impact that would cause major loss of habitat/population on the Project site and have a sufficient effect to alter the nature of the habitat/population in the short to long-term affecting the long-term viability. For example, more than 20% habitat loss or long-term damage, or more than 20% loss of a species' population.
Medium	Impact that is detectable in the short to medium term, but which should not alter the long-term viability of the feature/population. For example, between 10-20% habitat loss or 10-20% reduction of a species population.
Low	Impact of small scale or short duration that results in no long-term harm to the habitat/populations viability. For example, a loss or damage of under 10% of the habitat.
Negligible	No loss or alteration of characteristics, features or elements; no observable impact in either direction.

Beneficial or Adverse Effects

- 7.40 Beneficial and adverse impacts and effects are determined whether the change is in accordance with nature conservation policy and objectives:
- Beneficial – a change which improved the quality of the environment, for example, increasing species diversity or extending/improving habitat extent. This can also include reducing the rate of existing environmental decline; and
 - Adverse – a change which reduces the quality of the environment, for example, habitat destruction, habitat fragmentation, loss of species or pollution events.

Extent

- 7.41 The extent of an impact refers to the area of which the impact will reasonably be occur under a set of criteria that is reflective of the anticipated practices. For example, the extent of fine sediment pollution will be lower for smaller scale projects that are not near watercourses compared to projects working directly on a riverbank or in a channel.

Duration

- 7.42 CIEEM (2018) states that duration is defined in the relative context of ecological traits, such as the lifecycle of a species. The duration of an activity may differ from the duration of the resulting effect caused by the activity. Table 7.7 defines the timescales used within this assessment.

Table 7.7: Duration of Effects

Duration	Definition
Permanent	Habitat: Impacts that lead to irreversible changes in habitat structure or function, resulting in the permanent loss of habitat types. Fauna: Impacts that result in irreversible loss or extinction of a species, with no possibility of recovery.
Long Term	Habitat: Impacts that last for a significant duration, typically spanning decades, but may allow for eventual recovery or restoration under certain conditions. Fauna: Impacts that affect a species over one or more lifecycles, typically spanning years to decades, but may allow for eventual recovery.
Medium Term	Habitat: Impacts that last from several months to a few years, affecting habitat quality or availability but allowing for recovery within a reasonable timeframe. Fauna: Impacts that affect a species over a significant portion of its life cycle, typically lasting from one to several years.
Short Term	Impacts that are brief, typically lasting from days to a few months, with minimal long-lasting effects on habitat integrity or species' population or health.
Temporary	No lasting effects.

Frequency and Timing

- 7.43 The resulting effect of an impact is influenced by the number of times an activity occurs (CIEEM, 2018). For example, one vehicle driving across a sensitive habitat may have a slight impact, but the habitat may recover, however, frequent vehicle passes will significantly degrade the habitat to the point where it may not recover and be permanently lost.

Reversibility

- 7.44 An impact from which recovery is not possible within a reasonable timescale or there is no chance of action to implement successful mitigation is considered irreversible. An impact from which spontaneous recovery or with which recovery is possible through successful mitigation is classed as reversible. It should be noted that in some cases the same activity can cause impacts which are both irreversible and reversible (CIEEM, 2018).

Significance of Effects

- 7.45 The combination of Magnitude (Table 7.6) and Sensitivity (Table 7.5) can be applied to a significance matrix which assigns a significance category to each IEF (Table 7.8). This approach takes on board the CIEEM (2018) guidance; however, a matrix approach is used here as it can help visualise levels of significance for a layperson. Professional judgement is also applied in determining significance using the criteria discussed above (e.g., duration, reversibility, extent, frequency and timing), and therefore the final significance of an impact may differ from the resultant significance from Table 7.8.

Table 7.8: Significance of Effects Matrix. Significant effects are in bold.

Sensitivity	Magnitude			
	High	Medium	Low	Negligible
Very High	Substantial	Major or substantial	Moderate or major	Minor
High	Major	Moderate or major	Minor or moderate	Minor
Medium	Moderate or major	Moderate	Minor	Negligible or minor
Low	Minor or moderate	Minor	Negligible or minor	Negligible or minor
Negligible	Minor	Negligible or minor	Negligible	Negligible

7.46 Table 7.9 describes the significance of each effect. Effects categorised as moderate or major significance are evaluated as significant under EIA Regulations, whilst those categorised as minor or negligible significance are evaluated as not significant.

Table 7.9: Significance Criteria

Significance Criteria	Definition
Substantial	Only adverse effects are normally assigned this level of significance. They represent key factors in the decision-making process. These effects are generally, but not exclusively, associated with sites or features of international, national or regional importance that are likely to suffer a most damaging impact and loss of resource integrity. However, a major change in a site or feature of local importance may also enter this category.
Major	Effects are likely to be important considerations at a regional or district scale but which, if adverse, are potential concerns to the project, depending upon the relative importance attached to the issue during the decision-making process.
Moderate	Effects, if adverse, while important at a local scale, are not likely to be key decision-making issues. Nevertheless, the cumulative effect of such issues may lead to an increase in the overall effects on a particular area or on a particular resource.
Minor	Effects may be raised as local issues, but which are unlikely to be of importance in the decision-making process. Nevertheless, they are of relevance in the detailed design of the project.
Negligible	No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

Embedded Measures and Mitigation

7.47 The inbuilt mitigation for the proposed development would seek to reduce any potential effects to ecological receptors during both the construction and operational phases of the proposed development:

- Infrastructure has been or will be designed to avoid areas of deep peat, and as a result, blanket bog. Additionally, where feasible, all road structures will utilise a floating method of construction;
- A 50m buffer has been placed around all known watercourses with main infrastructure placed out with these buffers to minimise the likelihood of sedimentation and pollution occurring;
- Works within the Barr Water or Abhainn a' Chnocain should not be undertaken between mid-October and June, inclusive, to avoid the sensitive spawning and emergence periods for salmonids and brook lamprey;
- A fish rescue should be undertaken immediately prior to works within any watercourse;
- Where water crossings are required, these would be in line with relevant guidance (e.g., SEPA, 2010) and designed sensitively designed to:
 - Allow safe passage of otter, water vole, and fish species;
 - Avoid alterations of the watercourse being crossed;
 - Retain habitat directly adjacent to the crossing.
- Baseline, during-construction and post-construction fish population surveys will be conducted to ensure an up-to-date baseline as well as capture design iterations, and then to monitor fish populations during and after construction of the proposed development;
- Infrastructure design seeks to avoid areas of ground water dependent terrestrial ecosystem habitat if identified as present within the proposed development area;
- All turbines have been placed a suitable buffer distance from features likely to be used by bat species to reduce the potential for collision mortality or barotrauma in line with industry standard guidance (NatureScot, 2021);
- A Construction Environment Management Plan (CEMP) would be provided which would detail mitigation plans to protect environmental receptors during the construction phase of the proposed development;
- A Pollution Prevention Plan (PPP) within the CEMP will identify potential pollution sources and outline strategies and best practices to minimise and mitigate the risk of pollution. It will include monitoring protocols, training for personnel, emergency response procedures, and will comply with environmental regulations to protect water quality and aquatic ecosystems. Measures within it may include adherence to relevant SEPA Pollution Prevention Guidelines (PPGs) and Guidelines for Pollution Prevention (GPPs);
- A Peat Management Plan (PMP) (Technical Appendix 9.2) within the CEMP will outline procedures for the careful excavation, handling, storage, and reinstatement of peat during construction. It will assess peat depth and quality, identify strategies to mitigate disturbance, and include protocols for monitoring peat storages. The plan will also provide guidelines for effective reinstatement of peat, as well as training for personnel on best practices.
- An Environmental Clerk of Works (EnvCoW) will be present throughout the duration of the construction phase of the proposed development to monitor environmental compliance, advise on related issues and produce regular reports to document environmental performance;

- A Water Quality Monitoring Plan (WQMP) will be produced, which will detail the requirements of monthly pre, during and post-construction water quality monitoring. This monitoring procedure will be followed to reduce the risk of an impact to habitats;
- Pre-construction surveys would be completed prior to commencement of the construction phase to ensure an up-to-date baseline is available of protected species utilisation of the proposed development area to minimise disturbance to sensitive species. Pre-construction surveys will specifically include updated fish habitat mapping (to target spawning and larval lamprey habitats) and a FWPM survey (Barr Water and Abhainn a' Chnocain only) around all areas where in-channel working is proposed.
- After an Access Track Option is identified, further investigation of potential roosts (trees, structures, buildings) identified within 30m in the Technical Appendix 7.2: Bat Survey Report, will be required further investigated to determine presence/absence of bat roosts;
- Species Protection Plans (SPPs) should be delivered for bats, otters and freshwater fish. These plans will be prepared as a supporting document to the detailed CEMP to protect protected species and will include precautionary mitigation and good practice procedures; and
- If disturbance to any protected species (i.e. works anticipated within 30m of an otter resting site) is anticipated at any point during the development, a license will from NatureScot will be acquired prior to any potentially disturbing works.

Cumulative Effects

- 7.48 The impact of the proposed development will be assessed with other developments to identify any cumulative effects on IEFs scoped in. The cumulative assessment for the proposed development focussed on other wind farms. Cumulative effects are considered for each IEF based on the relevant impact pathways, which may differ between IEFs. For example, a wind farm located close to the proposed development but in a different catchment may not result in cumulative impacts on freshwater fish (due to a lack of hydrologic connection) but could impact bats.

Baseline Conditions

- 7.49 This section of the report details the results of the desk study and field surveys conducted across the Site and respective Study Areas, which provides the baseline conditions from which the impact assessment is based. This includes:
- Desk-study results (designated sites and protected/notable species);
 - Habitats and vegetative communities; and
 - Protected and notable terrestrial and aquatic species.

Desktop Study

Designated Sites

- 7.50 No designated sites (either statutory or non-statutory) were identified within the Site. No statutory designated sites were identified with ecological qualifying features within a 2km radius of the Site. One non-statutory designated site, Bellochautuy Bay Local Nature Conservation Site (LNCS), was identified approximately 1.5km from the Site. Sites designated for geological interest were excluded, and sites relating to ornithology are considered in Chapter 8: Ornithology.

Protected Species

- 7.51 The desk study was undertaken in 2025. A request was made to ABReC for all records of notable and protected species within 2km of the Site, and bat species within 10km of the Site, within the last 10 years. The search returned two records of notable species, both of which are included on the Scottish Biodiversity List (Table 7.10). The western hedgehog is listed on the UKBAP as a priority species. No bat records were received from the data centre, but the area is remote and considered likely to be under recorded. Full results of the desk study are presented in Technical Appendix 7.1: Protected Species Survey Report and Technical Appendix 7.2: Bat Survey Report.

Table 7.10: ABReC Records from the Last 10 Years, of Protected and Notable Species (Excluding bats, ornithology, habitats and aquatic ecology) within 2 km of the Proposed Development.

Common Name	Grid Reference	Taxon Name	Last Recorded	Conservation Designations
Western Hedgehog	NR6634	<i>Erinaceus europaeus</i>	2021	UK BAP priority species, Scottish Biodiversity List species
Fabricius' Nomad Bee	NR6739	<i>Nomada fabriciana</i>	2023	Scottish Biodiversity List species

Field Surveys

Main Wind Farm Site

- 7.52 Numerous broad habitat types were present within the Main Wind Farm Site including mires and flushes, wet heaths, grasslands, woodlands and scrub. Purple moor-grass and rush pastures (UKHab f2b) was the most common habitat encountered, comprising 65.4% of the Main Wind Farm Site (Figure 7.2, Table 7.11). Blanket bog (UKHab f1a) and upland flushes, fens and swamps (UKHab f2c) were also common in the site, encompassing 12.2% and 13.6% of the Main Wind Farm Site, respectively.
- 7.53 NVC habitats were mapped in the Main Wind Farm Site where possible with applicable communities. The communities mapped included mires and flushes (M2, M6, M10, M17,

M19, M20, M23, M25), wet heaths (M15), calcifugous grasslands and bracken-dominated vegetation (U4, U5, U6, U20), one mesotrophic grassland (MG10), calcicolous grasslands (CG10), woodland and scrub (W4, W9, W11) (Figure 7.3, Table 7.11).

- 7.54 Many of the habitats, including peatlands, within the Main Wind Farm Site showed signs of degradation. The main impact observed during the field surveys was heavy grazing, but peat hags were also observed in some areas and artificial drains were frequent within the peatland.
- 7.55 Several UKBAP priority habitat types were present in the Main Wind Farm Site including upland flushes, fens and swamps, upland heathland, purple moor-grass and rush pasture and blanket bog. Two habitat types included under Annex I of the Habitats Directive were present within the Access Track Site, Northern Atlantic wet heaths with *Erica tetralix* (H4010) and blanket bog (H7130).
- 7.56 Six NVC communities present in the Access Track Site are potential GWDTEs, based on current SEPA guidance (SEPA, 2024) (Figure 7.4).
- 7.57 No rare or red listed plant species were recorded during the vegetation surveys for the Main Wind Farm Site.
- 7.58 Full results of the habitat surveys for the Main Wind Farm Site are presented in Technical Appendix 7.5: Habitats and Groundwater Dependent Terrestrial Ecosystems Survey Report.

Access Track Site

- 7.59 A variety of habitat types were present in the Access Track Site including cropland and pasture, grassland, woodlands, heathland and scrub. *Holcus-Juncus* neutral grassland (UKHab g3c8) and purple moor-grass and rush pastures (UKHab f2b) were the two most common habitats encountered, together encompassing 41.4% of the total area of the Access Track Site (Figure 7.2, Table 7.12).
- 7.60 NVC communities were mapped where possible. Mapped communities included mesotrophic (MG6, MG10) and calcifugous grasslands (U2, U4, U20), dry heaths (H10), wet heaths (M15), mires (M23, M25), woodland and scrub (W4, W7, W11, W23) and aquatic vegetation (A9) (Figure 7.3, Table 7.12).
- 7.61 Several UKBAP priority habitat types were present in the Access Track Site including upland flushes, fens and swamps, upland heathland, purple moor-grass and rush pasture and blanket bog. Three habitat types included under Annex I of the Habitats Directive were present within the Access Track Site, Northern Atlantic wet heaths with *Erica tetralix* (H4010), European dry heaths (H4030) and blanket bog (H7130).
- 7.62 Six NVC communities present in the Access Track Site are potential GWDTEs, based on current SEPA guidance (SEPA, 2024) (Figure 7.4).
- 7.63 No rare or red listed plant species were recorded during the vegetation surveys for the Access Track Site.

- 7.64 Full results of the habitat surveys for the Access Track Site are presented in Technical Appendix 7.5: Habitats and Groundwater Dependent Terrestrial Ecosystems Survey Report.

Table 7.11: Main Wind Farm Site - UKHab and NVC Habitats

UKHab habitat code & title	Area*		NVC code & Community description	Area*	
	Absolute (ha)	Relative (%)		Absolute (ha)	Relative (%)
f1a (Blanket bog)	44.63	12.2	M17 (<i>Scirpus cespitosus</i> - <i>Eriophorum vaginatum</i> blanket mire)	1.25	0.3
			M17a (<i>Scirpus cespitosus</i> - <i>Eriophorum vaginatum</i> blanket mire, <i>Drosera rotundifolia</i> - <i>Sphagnum</i> spp. sub-community)	25.68	7.0
			M17a/M17b (<i>Scirpus cespitosus</i> - <i>Eriophorum vaginatum</i> blanket mire, <i>Drosera rotundifolia</i> - <i>Sphagnum</i> spp. sub-community & <i>Scirpus cespitosus</i> - <i>Eriophorum vaginatum</i> blanket mire, <i>Cladonia</i> spp. sub-community)	0.99	0.3
			M17b (<i>Scirpus cespitosus</i> - <i>Eriophorum vaginatum</i> blanket mire, <i>Cladonia</i> spp. sub-community)	5.36	1.5
			M17c (<i>Scirpus cespitosus</i> - <i>Eriophorum vaginatum</i> blanket mire, <i>Juncus squarrosus</i> - <i>Rhytidiadelphus loreus</i> sub-community)	0.06	<0.1
			M19a (<i>Calluna vulgaris</i> - <i>Eriophorum vaginatum</i> blanket mire, <i>Erica tetralix</i> sub-community)	10.10	2.8
			M20b (<i>Eriophorum vaginatum</i> blanket and raised mire, <i>Calluna vulgaris</i> - <i>Cladonia</i> spp. sub-community)	1.20	0.3
f2b (Purple moor-grass and rush pastures)	239.85	65.4	M25a (<i>Molinia caerulea</i> - <i>Potentilla erecta</i> mire, <i>Erica tetralix</i> sub-community)	238.26	64.9
			M25b (<i>Molinia caerulea</i> - <i>Potentilla erecta</i> mire, <i>Anthoxanthum odoratum</i> sub-community)	1.59	0.4
f2c (Upland flushes, fens and swamps)	49.77	13.6	M6c (<i>Carex echinata</i> - <i>Sphagnum recurvum/auriculatum</i> mire, <i>Juncus effusus</i> sub-community)	16.61	4.5
			M6d (<i>Carex echinata</i> - <i>Sphagnum recurvum/auriculatum</i> mire, <i>Juncus acutiflorus</i> sub-community)	33.16	9.0
g1b (Upland acid grassland)	8.16	2.2	U4a (<i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Galium saxatile</i>)	5.50	1.5

UKHab habitat code & title	Area*		NVC code & Community description	Area*	
			grassland, typical sub-community)		
			U4b (<i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Galium saxatile</i> grassland, <i>Holcus lanatus</i> - <i>Trifolium repens</i> sub-community)	0.90	0.3
			No NVC	1.43	0.4
			U5a (<i>Nardus stricta</i> - <i>Galium saxatile</i> grassland, species-poor sub-community)	0.29	<0.1
			U6 (<i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland)	0.04	<0.1
g1c (Bracken)	20.83	5.7	U20a (<i>Pteridium aquilinum</i> - <i>Galium saxatile</i> community, <i>Anthoxanthum odoratum</i> sub-community)	20.83	5.7
g3c8 (<i>Holcus</i>-<i>Juncus</i> neutral grassland)	1.71	0.5	M23a (<i>Juncus effusus</i> / <i>acutiflorus</i> - <i>Galium palustre</i> rush-pasture, <i>Juncus acutiflorus</i> sub-community)	0.11	<0.1
			M23b (<i>Juncus effusus</i> / <i>acutiflorus</i> - <i>Galium palustre</i> rush-pasture, <i>Juncus effusus</i> sub-community)	0.07	<0.1
			MG10a (<i>Holcus lanatus</i> - <i>Juncus effusus</i> rush-pasture, typical sub-community)	1.53	0.4
h1b (Upland heathland)	0.84	0.2	M15b (<i>Scirpus cespitosus</i> - <i>Erica tetralix</i> wet heath, typical sub-community)	0.30	<0.1
			M15c (<i>Scirpus cespitosus</i> - <i>Erica tetralix</i> wet heath, <i>Cladonia</i> spp. sub-community)	0.54	0.2
w1a5 (Western acidic oak woodland (H91A0))	0.62	0.2	W11 (<i>Quercus petraea</i> - <i>Betula pubescens</i> - <i>Oxalis acetosella</i> woodland)	0.62	0.2
w1b (Upland mixed ashwoods)	0.51	0.1	W9b (<i>Fraxinus excelsior</i> - <i>Sorbus aucuparia</i> - <i>Mercurialis perennis</i> woodland, <i>Crepis paludosa</i> sub-community)	0.51	0.1
w1g (Other broadleaved woodland)	0.07	<0.1	W4sc (<i>Betula pubescens</i> - <i>Molinia caerulea</i> woodland, <i>Sphagnum</i> spp. sub-community (<i>Sphagnum aurita</i> variant))	0.07	<0.1
w2c (Other coniferous woodland)	0.02	<0.1	No NVC	0.02	<0.1
Total	367.01	100.0		367.01	100.0

Table 7.12: Access Track Site - UKHab and NVC Habitats

UKHab habitat code & title	Area*		NVC code & Community description	Area*	
	Absolute (ha)	Relative (%)		Absolute (ha)	Relative (%)
c1b (Temporary grass and clover lays)	7.17	2.4	No NVC	7.17	2.4
c1c (Cereal crops)	0.16	0.1	No NVC	0.16	0.1
f1a (Blanket bog)	0.33	0.1	M15 (<i>Scirpus cespitosus</i> - <i>Erica tetralix</i> wet heath)	0.33	0.1
f2b (Purple moor-grass and rush pastures)	56.86	18.9	No habitat data	0.08	<0.01
			M23a, M23b, M25, W23 (Mosaic of <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture (including <i>Juncus acutiflorus</i> & <i>Juncus acutus</i> sub-communities), <i>Molinia caerulea</i> - <i>Potentilla erecta</i> mire, and <i>Ulex europaeus</i> - <i>Rubus fruticosus</i> scrub)	11.94	4.0
			M25 (<i>Molinia caerulea</i> - <i>Potentilla erecta</i> mire)	36.27	12.1
			M25a (<i>Molinia caerulea</i> - <i>Potentilla erecta</i> mire, <i>Erica tetralix</i> sub-community)	8.54	2.8
			No NVC	0.04	<0.1
f2c (Upland flushes, fens and swamps)	2.28	0.8	M6 (<i>Carex echinata</i> - <i>Sphagnum recurvum/auriculatum</i> mire)	0.77	0.3
			M6a (<i>Carex echinata</i> - <i>Sphagnum recurvum/auriculatum</i> mire, <i>Carex echinata</i> sub-community)	1.51	0.5
g1b (Upland acid grassland)	7.56	2.5	U4 (<i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Galium saxatile</i> grassland)	0.32	0.1
			U4b (<i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Galium saxatile</i> grassland, <i>Holcus lanatus</i> - <i>Trifolium repens</i> sub-community)	7.24	2.4
g1c (Bracken)	7.91	2.6	U20 (<i>Pteridium aquilinum</i> - <i>Galium saxatile</i> community)	7.58	2.5
			U20c (<i>Pteridium aquilinum</i> - <i>Galium saxatile</i> community, species-poor sub-community)	0.33	0.1
g3c (Other neutral grassland)	6.52	2.2	M23b/W23 (<i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture - <i>Juncus acutiflorus</i> sub-community & <i>Ulex</i>	0.27	0.1

UKHab habitat code & title	Area*		NVC code & Community description	Area*	
			<i>europaeus</i> - <i>Rubus fruticosus</i> scrub)		
			M25/U2 (<i>Molinia caerulea</i> - <i>Potentilla erecta</i> mire & <i>Deschampsia flexuosa</i> grassland)	0.46	0.2
			MG10 (<i>Holcus lanatus</i> - <i>Juncus effusus</i> rush-pasture)	5.33	1.8
			No NVC	0.46	0.2
g3c6 (<i>Lolium</i>-<i>Cynosurus</i> neutral grassland)	28.36	9.4	MG6 (<i>Lolium perenne</i> - <i>Cynosurus cristatus</i> grassland)	28.36	9.4
g3c7 (<i>Deschampsia</i> neutral grassland)	9.14	3.0	U2 (<i>Deschampsia flexuosa</i> grassland)	9.14	3.0
g3c8 (<i>Holcus</i>-<i>Juncus</i> neutral grassland)	67.43	22.5	M23 (<i>Juncus effusus</i> / <i>acutiflorus</i> - <i>Galium palustre</i> rush-pasture)	4.07	1.4
			M23a (<i>Juncus effusus</i> / <i>acutiflorus</i> - <i>Galium palustre</i> rush-pasture, <i>Juncus acutiflorus</i> sub-community)	3.80	1.3
			M23b (<i>Juncus effusus</i> / <i>acutiflorus</i> - <i>Galium palustre</i> rush-pasture, <i>Juncus effusus</i> sub-community)	6.24	2.1
			MG10 (<i>Holcus lanatus</i> - <i>Juncus effusus</i> rush-pasture)	17.28	5.8
			MG10a (<i>Holcus lanatus</i> - <i>Juncus effusus</i> rush-pasture, typical sub-community)	31.65	10.5
			mod/M23a (UKHab g4 modified grassland/ <i>Juncus effusus</i> / <i>acutiflorus</i> - <i>Galium palustre</i> rush-pasture, <i>Juncus acutiflorus</i> sub-community)	4.39	1.5
g4 (Modified grassland)	23.31	7.8	No NVC	23.31	7.8
h1b (Upland heathland)	4.78	1.6	H10 (<i>Calluna vulgaris</i> - <i>Erica cinerea</i> heath)	0.05	<0.1
			M15 (<i>Scirpus cespitosus</i> - <i>Erica tetralix</i> wet heath)	4.59	1.5
			No NVC	0.15	0.1
h2a5 (Species-rich native hedgerow)	0.12	0.0	No NVC	0.12	<0.1
h3 (Dense scrub)	0.06	0.0	No NVC	0.06	<0.1
h3b5 (Atlantic hazel)	1.87	0.6	No NVC	1.87	0.6

UKHab habitat code & title	Area*		NVC code & Community description	Area*	
h3e (Gorse scrub)	6.61	2.2	M25 (<i>Molinia caerulea</i> - <i>Potentilla erecta</i> mire)	0.51	0.2
			U20 (<i>Pteridium aquilinum</i> - <i>Galium saxatile</i> community)	0.42	0.1
			No NVC	1.48	0.5
			W23 (<i>Ulex europaeus</i> - <i>Rubus fruticosus</i> scrub)	4.20	1.4
h3e, g4 (Gorse scrub, modified grassland)	0.07	0.0	No NVC	0.07	<0.1
h3h (Mixed scrub)	1.61	0.5	No NVC	1.61	0.5
h3j (Willow scrub)	1.63	0.5	No NVC	1.63	0.5
No UKHab	22.34	7.4	M25/M23a (<i>Molinia caerulea</i> - <i>Potentilla erecta</i> mire & <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture, <i>Juncus acutiflorus</i> sub-community)	22.34	7.4
No UKHab	0.88	0.3	M25/U2 (<i>Molinia caerulea</i> - <i>Potentilla erecta</i> mire & <i>Deschampsia flexuosa</i> grassland)	0.88	0.3
u1b (Developed land; sealed surface)	3.14	1.0	M25 (<i>Molinia caerulea</i> - <i>Potentilla erecta</i> mire)	2.67	0.9
			No NVC	0.46	0.2
u1b5 (Buildings)	0.03	0.0	No NVC	0.03	<0.1
u1d (Suburban mosaic of developed and natural surface)	0.64	0.2	No NVC	0.64	0.2
u1e (Built linear features)	5.02	1.7	No NVC	5.02	1.7
w1a (Upland oakwood)	1.92	0.6	W7 (<i>Alnus glutinosa</i> - <i>Fraxinus excelsior</i> - <i>Lysimachia nemorum</i> woodland)	1.92	0.6
w1a5 (Western acidic oak woodland (H91A0))	5.27	1.8	No NVC	0.82	0.3
			W11 (<i>Quercus petraea</i> - <i>Betula pubescens</i> - <i>Oxalis acetosella</i> woodland)	1.54	0.5
			W11a (<i>Quercus petraea</i> - <i>Betula pubescens</i> - <i>Oxalis acetosella</i> woodland, <i>Dryopteris dilatata</i> sub-community)	0.23	0.1
			W11b (<i>Quercus petraea</i> - <i>Betula pubescens</i> - <i>Oxalis acetosella</i> woodland, <i>Blechnum spicant</i> sub-community)	2.54	0.9

UKHab habitat code & title	Area*		NVC code & Community description	Area*	
			W11-Ca (<i>Quercus petraea</i> - <i>Betula pubescens</i> - <i>Oxalis acetosella</i> woodland - atypical <i>Corylus avanella</i> dominant community)	0.14	0.1
w1b (Upland mixed ashwoods)	12.28	4.1	U2 (<i>Deschampsia flexuosa</i> grassland)	1.38	0.5
			W7 (<i>Alnus glutinosa</i> - <i>Fraxinus excelsior</i> - <i>Lysimachia nemorum</i> woodland)	10.90	3.6
w1g (Other broadleaved woodland)	0.31	0.1	W4 (<i>Betula pubescens</i> - <i>Molinia caerulea</i> woodland)	0.31	0.1
w2c (Other coniferous woodland)	14.19	4.7	U20a (<i>Pteridium aquilinum</i> - <i>Galium saxatile</i> community, <i>Anthoxanthum odoratum</i> sub-community)	2.73	0.9
			No NVC	11.46	3.8
No habitat data	0.66	0.2	No habitat data	0.66	0.2
Total	300.47	100.0		300.47	100.0

GWDTE

- 7.65 Of the habitats recorded during the NVC survey of the Main Wind Farm Site, the M10, M15b, M15c, M23a, M23b, M6c, M6d, MG10a and W4sc NVC communities were identified with a potential for dependency on a groundwater resource (Table 7.13) based on the most recent SEPA guidance (SEPA, 2024). All other NVC communities present in the Main Wind Farm Site were classed having no potential to be groundwater dependent.
- 7.66 Of the habitats recorded during the NVC survey of the Access track Site, the M6, M6a, M15, M23, M23a, M23b, M25, MG10, MG10a, W23, W4 and W7 NVC communities were identified with a potential for dependency on a groundwater resource (Table 7.14) based on the most recent SEPA guidance (SEPA, 2024). All other NVC communities present in the Access Track Site were classed having no potential to be groundwater dependent. Whether the NVC communities listed in Table 7.13 and
- 7.67 Error: Reference source not found are GWDTE depends on the hydrogeological setting. It is therefore important to consider the water supply mechanisms in order to determine the 'likely' or 'actual' groundwater dependency.
- 7.68 The habitats not on peat soils were found to be underlain by diamicton till, which is considered likely to provide an impermeable barrier between the underlying bedrock and the habitats, which would prevent groundwater within the bedrock from reaching the surface (see Chapter 7 paragraphs 9.85 – 9.88). Based on this, these habitats were considered to be unlikely to be groundwater-dependent (Table 7.13, Error: Reference source not found).
- 7.69 The habitats on peat soils are underlain by Glacial till which is considered to create an impermeable barrier between the underlying bedrock and the habitats, and furthermore the bedrock beneath these habitats is considered to be a low productivity aquifer (see Chapter 7 paragraphs 9.89 – 9.94). Based on this, it is concluded that the potential GWDTE habitats on peat soils are unlikely to be groundwater dependent (Table 7.13, Error: Reference source not found).
- 7.70 Full details of the GWDTE assessment are presented in Technical Appendix 7.5 Habitats and Groundwater Dependent Terrestrial Ecosystem Survey Report.

Table 7.13: Assessment of Groundwater Dependency for the Main Wind Farm Site

UKHab Code and Title	National Vegetation Classification Code and Title	Groundwater dependent	
		Potentially as per guidance (SEPA, 2024)	Site-specific hydro-ecological assessment
f2c (Upland flushes, fens and swamps)	M10 (<i>Carex dioica</i> - <i>Pinguicula vulgaris</i> mire)	Yes	Unlikely
h1b (Upland heathland)	M15b (<i>Scirpus cespitosus</i> - <i>Erica tetralix</i> wet heath, typical sub-community)	Yes	Unlikely
	M15c (<i>Scirpus cespitosus</i> - <i>Erica tetralix</i> wet heath, <i>Cladonia</i> spp. sub-community)	Yes	Unlikely
g3c8 (<i>Holcus</i> - <i>Juncus</i> neutral grassland)	M23a (<i>Juncus effusus</i> / <i>acutiflorus</i> - <i>Galium palustre</i> rush-pasture, <i>Juncus acutiflorus</i> sub-community)	Yes	Unlikely
	M23b (<i>Juncus effusus</i> / <i>acutiflorus</i> - <i>Galium palustre</i> rush-pasture, <i>Juncus effusus</i> sub-community)	Yes	Unlikely
f2c (Upland flushes, fens and swamps)	M6c (<i>Carex echinata</i> - <i>Sphagnum recurvum</i> / <i>auriculatum</i> mire, <i>Juncus effusus</i> sub-community)	Yes	Unlikely
	M6d (<i>Carex echinata</i> - <i>Sphagnum recurvum</i> / <i>auriculatum</i> mire, <i>Juncus acutiflorus</i> sub-community)	Yes	Unlikely
g3c8 (<i>Holcus</i> - <i>Juncus</i> neutral grassland)	MG10a (<i>Holcus lanatus</i> - <i>Juncus effusus</i> rush-pasture, typical sub-community)	Yes	Unlikely
w1g (Other broadleaved woodland)	W4sc (<i>Betula pubescens</i> - <i>Molinia caerulea</i> woodland, <i>Sphagnum</i> spp. sub-community (<i>Sphagnum aurita</i> variant))	Yes	Unlikely

Table 7.14: Assessment of Groundwater Dependency for the Access Track Site

UKHab Code and Title	National Vegetation Classification Code and Title	Groundwater dependent	
		Potentially as per guidance (SEPA, 2024)	Site-specific hydro-ecological assessment
f1a (Blanket bog)	M15 (<i>Scirpus cespitosus</i> - <i>Erica tetralix</i> wet heath)	Yes	Unlikely
f2b (Purple moor-grass and rush pastures)	M23a, M23b, M25, W23 (Mosaic of <i>Juncus effusus</i> / <i>acutiflorus</i> - <i>Galium palustre</i> rush-pasture (including <i>Juncus acutiflorus</i> & <i>Juncus acutus</i> sub-communities), <i>Molinia caerulea</i> - <i>Potentilla erecta</i> mire, and <i>Ulex europaeus</i> - <i>Rubus fruticosus</i> scrub)	Yes	Unlikely
f2c (Upland flushes, fens and swamps)	M6 (<i>Carex echinata</i> - <i>Sphagnum recurvum</i> / <i>auriculatum</i> mire)	Yes	Unlikely
f2c (Upland flushes, fens and swamps)	M6a (<i>Carex echinata</i> - <i>Sphagnum recurvum</i> / <i>auriculatum</i> mire, <i>Carex echinata</i> sub-community)	Yes	Unlikely
g3c (Other neutral grassland)	M23b, W23 (<i>Juncus effusus</i> / <i>acutiflorus</i> - <i>Galium palustre</i> rush-pasture - <i>Juncus acutiflorus</i> sub-community & <i>Ulex europaeus</i> - <i>Rubus fruticosus</i> scrub)	Yes	Unlikely
	MG10 (<i>Holcus lanatus</i> - <i>Juncus effusus</i> rush-pasture)	Yes	Unlikely
g3c8 (<i>Holcus</i> - <i>Juncus</i> neutral grassland)	M23 (<i>Juncus effusus</i> / <i>acutiflorus</i> - <i>Galium palustre</i> rush-pasture)	Yes	Unlikely
	M23a (<i>Juncus effusus</i> / <i>acutiflorus</i> - <i>Galium palustre</i> rush-pasture, <i>Juncus acutiflorus</i> sub-community)	Yes	Unlikely
	M23b (<i>Juncus effusus</i> / <i>acutiflorus</i> - <i>Galium palustre</i> rush-pasture, <i>Juncus effusus</i> sub-community)	Yes	Unlikely
	MG10 (<i>Holcus lanatus</i> - <i>Juncus effusus</i> rush-pasture)	Yes	Unlikely
	MG10a (<i>Holcus lanatus</i> - <i>Juncus effusus</i> rush-pasture, typical sub-community)	Yes	Unlikely
	mod/M23a (UKHab g4 modified grassland/ <i>Juncus effusus</i> / <i>acutiflorus</i> - <i>Galium palustre</i> rush-pasture, <i>Juncus acutiflorus</i> sub-community)	Yes	Unlikely
h1b (Upland heathland)	M15 (<i>Scirpus cespitosus</i> - <i>Erica tetralix</i> wet heath)	Yes	Unlikely

UKHab Code and Title	National Vegetation Classification Code and Title	Groundwater dependent	
		Potentially as per guidance (SEPA, 2024)	Site-specific hydro-ecological assessment
M25/M23a mosaic (No UKHab)	M25/M23a (<i>Molinia caerulea</i> - <i>Potentilla erecta</i> mire & <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture, <i>Juncus acutiflorus</i> sub-community)	Yes	Unlikely
w1a (Upland oakwood)	W7 (<i>Alnus glutinosa</i> - <i>Fraxinus excelsior</i> - <i>Lysimachia nemorum</i> woodland)	Yes	Unlikely
w1b (Upland mixed ashwoods)	W7 (<i>Alnus glutinosa</i> - <i>Fraxinus excelsior</i> - <i>Lysimachia nemorum</i> woodland)	Yes	Unlikely
w1g (Other broadleaved woodland)	W4 (<i>Betula pubescens</i> - <i>Molinia caerulea</i> woodland)	Yes	Unlikely

Protected Species

- 7.71 Full details of the protected species survey are presented in Technical Appendix 7.1 and all protected species observations are presented in Figure 7.4.
- 7.72 No evidence of badger was recorded within the Survey Area of the Site. Additionally, there were no records of badger presence returned by the local records centre within the last ten years. The majority of the Wind Farm Site is open moorland which offers suboptimal habitat for sett building. However, within the Main Wind Farm Site and Survey Area there are small areas of woodland which could offer suitable habitat for badger. Much of the Access Track Site and Survey Area offered suboptimal habitat for sett building, however, there were pockets of woodland and suitable field ditches which could be used for sett creation.
- 7.73 Evidence of otter was recorded within the Survey Area of the Main Wind Farm Site and the Access Track Site. At the Main Wind Farm Site, the only field signs identified were two spraints, and no resting sites were found. At the Access Track Site, numerous spraints and seven potential resting sites, including five potential holts and two potential couches were identified. The burns and rivers within the Site provide commuting waterways and potential resting opportunities, as well as suitable foraging habitats, with frogspawn and fish observed during the surveys.
- 7.74 Evidence of pine marten was recorded within the Survey Area of the Main Wind Farm Site, but not the Access Track Site. One pine marten scat was identified within the Main Wind Farm Site, and one potential pine marten scat was identified within the Survey Area buffer. The Main Wind Farm Site, being mostly open moorland, offers suitable foraging habitat with good food availability, as small mammals and berries such as bilberry (*Vaccinium myrtillus*) are present. Additionally, the presence of rocky outcrops, drystone walls and clear-felled forestry offers suitable refuge for the species. The Access Track Site Survey Area provides suitable foraging habitat, with good prey availability, and clear-felled forestry offering suitable denning opportunities. A derelict building in the south of

the Access Track Site was noted as having potential to be used by pine marten, with entry to a possible loft space.

- 7.75 Potential evidence of red squirrel was recorded within the Survey Area of the Main Wind Farm Site, but not the Access Track Site. Within the Survey Area, five stripped cones with a feeding pattern similar to squirrel were noted to the west of the Main Wind Farm Site in an area of clear-fell forestry. It is not possible to determine whether they were foraged by red squirrels or non-native grey squirrels (*Sciurus carolinensis*). Much of the Main Wind Farm Site is open moorland and unsuitable for red squirrels, however red squirrels may use the broadleaved trees along Abhainn a' Chnocain for foraging and potentially drey creation. The Access Track Site Survey Area offered suitable foraging and drey creation habitat for red squirrel with the presence of coniferous and deciduous trees that produce seeds and nuts.
- 7.76 No targeted reptile surveys were completed; however, several common lizards and two adders were identified within the Main Wind Farm Site. One common lizard was observed within the Access Track Site. The Site offers suitable habitats for reptiles, comprising *Molinia* tussocks, patches of bracken (*Pteridium aquilinum*), dense brash mats, and drystone walls, providing opportunities for basking, foraging and refuge.
- 7.77 Evidence of water vole was recorded within the Survey Area of the Main Wind Farm Site, but not the Access Track Site. A potential water vole was observed on the Main Wind Farm Site, along with a potential water vole food cache and potential burrows. Both the Main Wind Farm Site and the Access Track Site provide suitable habitat for the species, although the habitat is more limited within the Access Track Site. Areas suitable for burrowing were identified, as well as foraging opportunities with *Juncus* species present.
- 7.78 No evidence of wildcat was recorded within the Survey Area of the Site. The Main Wind Farm Site, being predominantly moorland connected to woodland edge habitat is suitable habitat for the species, with the moorland offering suitable foraging, and clear-fell forestry areas offering potential denning opportunities. Similarly, the Access Track Site offers suitable refuge habitat for wildcat within clear-fell forestry areas and areas of *Molinia* dominant habitats providing foraging opportunities.

Bats

- 7.79 There were no records of bats returned from the desk-based search within 10km of the Site.
- 7.80 The watercourses and woodland edge habitat within the Site offer foraging habitat and commuting routes to the periphery of the Site and the wider environment, where foraging areas such as larger woodlands and waterbodies are present. However, it is acknowledged that some of the preferred foraging habitats for the bat species identified in the activity surveys (e.g., woodland edges, over trees, open pasture, open water; Table 3.4 in Collins, 2023) were not found in much of the Main Wind Farm Site and were more prevalent in the Access Track Site. The value of the habitats within the entire Site and features present for foraging and commuting was assessed using the criteria from current guidance (Table 4.1 from Collins, 2023) and was considered to be Moderate based on these criteria.

- 7.81 All potential roost features (PRFs) for bats within the Site were identified in the Access Track Site only. Eight buildings/structures and 24 trees were identified as having potential for roosting bats. The buildings/structures offer low to moderate potential for roosting bats but the trees need further assessment to fully classify their roosting potential, therefore the value of these features for roosting cannot not be assessed at this stage without further surveys.
- 7.82 The activity surveys undertaken throughout the bat activity period of 2023 across the Main Wind Farm identified the presence of seven species of bats: *Myotis* species, *Nyctalus* species, Leisler's bat, brown long-eared bat, common pipistrelle, soprano pipistrelle, nathusius pipistrelle and unknown pipistrelle species) were also recorded.
- 7.83 Eleven static detectors were placed throughout the Main Wind Farm Site to record bat activity and the key results of the study in general are:
- Location 11 had the highest overall activity levels at the Site all other locations exhibited low activity levels only;
 - Of the three deployment periods, summer had the greatest activity levels, but the greatest species composition was in spring;
 - Common pipistrelle bats were recorded at high activity levels across all deployment periods at Location 11, and soprano pipistrelle bats were recorded at moderate to high activity levels across all deployment periods at Location 11;
 - *Nyctalus* species were recorded at generally low activity levels across the Site (6 detector locations) in spring and summer and no activity recorded in autumn;
 - Low *Myotis* species activity was recorded at ten locations throughout the deployment periods, with most of the activity concentrated at location 11
 - Low unknown pipistrelle species were recorded at seven locations throughout the deployment periods;
 - Nathusius pipistrelle was recorded in low levels in spring and at Location 02 only; and
 - Brown long-eared bats were recorded in low levels across all deployment periods at locations 08 and 11 only.
- 7.84 *Nyctalus* spp. bats are the most vulnerable species due to their flight activity habits and their rarity. In particular, they frequently forage and commute high over treetops at potential turbine Rotor Sweep Height (RSH) and therefore may be subject to greater risk from turbines than any other species identified during the activity surveys.
- 7.85 An assessment of risk to bats from the development was made using parameters outlined in the most recent industry standard guidance (NatureScot, 2021).
- 7.86 The overall risk assessment for the development is considered as presenting **low** risk for all bat species based on the worst-case scenario.
- 7.87 Full details of the bat surveys are presented in Technical Appendix 7.2.

Aquatic Ecology

7.88 On the Access Track Site, Argyll Fisheries Trust (AFT) undertook a fish population and habitat survey on the upper Barr Water, and the lower reaches of Abhainn a' Chnocain and several smaller tributaries, to determine suitability of the habitat for salmonid fish and FWPM, and their likely distribution. The full details of the surveys are presented in Technical Appendix 7.4, and summarised below:

- Fish and habitat surveys in the main channel of the upper Barr Water found habitat that are suitable for Atlantic salmon (*Salmo salar*) and brown trout (*Salmo trutta*) but has limited potential to support FWPM. Brown trout are present in some tributaries where there is suitable habitat.
- Fish and habitat surveys in Abhainn a' Chnocain found habitat that are less suitable for salmon and trout, but salmon are present downstream of obstacles to migration and brown trout are present upstream of the obstacles. Here, there is some potential habitat for FWPM but none were found during the survey.
- The lower gradient channel types found in the upper Barr Water are likely to be more susceptible to disturbance or change compared to the more moderate gradient channel types found in the Abhainn a' Chnocain.

7.89 On the Main Wind Farm Site, RPS undertook a fish population and habitat assessment on Abhainn a' Chnocain and its tributaries, with potential to be affected by the proposed development, to determine suitability of the habitat for salmonid fish, and their likely distribution. The full details of the surveys are presented in Technical Appendix 7.3, and summarised below:

- The results indicate that brown trout are widely distributed within the Main Wind Farm Site, and that either lamprey (*Lampetra planeri*) or European eel (*Anguilla Anguilla*) are also present in Abhainn a' Chnocain.
- Numerous natural obstacles present within the Main Wind Farm Site, as well as downstream, leading to the assumption that the trout collected are all resident brown trout, as opposed to anadromous sea trout.
- It is also considered likely that fish in this catchment upstream of likely barriers to fish migration are isolated from a wider population further downstream.
- The best quality brown trout habitat was in Abhainn a' Chnocain, but Allt a' Bhlair and Allt an Tuirc also provided good habitat.
- Brown trout were collected from all of the sites except AD-3 on Allt Domhain. Parr were collected from all sites where fish were captured, and of these sites, only AD-2 on Allt a' Bhlair showed no evidence of fry being present. The density of parr was classified as moderate at AD-2. At all other electrofishing sites, fry and parr density was classified as low or very low. These results are similar to those observed in 2024 (Argyll Fisheries Trust, 2024), where brown trout were widely distributed in the lower reaches of Abhainn a' Chnocain, but most sites exhibited a larger number of parr than fry.
- The tributaries to Abhainn a' Chnocain in general provided very limited spawning habitat therefore, brown trout may spawn in other areas of the catchment or

opportunistically use small patches of suitable substrates within the Main Wind Farm Site. Spawning habitat was patchily distributed in Abhainn a' Chnocain.

- No brook lamprey or European eel were collected during the surveys however, one was seen in Abhainn a' Chnocain but was missed, and therefore could not be identified.
- Minimal habitat for larval lamprey is present within the surveyed watercourses, due to the lack of silt or fine substrates.
- The habitat observed in the surveyed watercourses was suitable for European eel, but none were collected in these surveys.
- No salmon were collected during the surveys. Obstacles to fish movement within Abhainn a' Chnocain, further downstream than the Main Wind Farm Site, are likely to prevent salmon utilising suitable habitat further upstream.
- Some suitable habitat for FWPM was identified in Abhainn a' Chnocain, but much of it was unsuitable or suboptimal due to large, mobile substrates. The tributaries to Abhainn a' Chnocain were considered to provide no suitable habitat for FWPM, due to their general small size, steep gradient and large, mobile substrates.

Survey Limitations

Protected Species

- 7.90 At the time of the survey, access to some areas of the Access Track Survey Area was limited due to a lack of permission or the presence of livestock. In these instances, a visual assessment of habitat suitability was conducted from accessible locations. Additionally, heavy rain prior to the surveys may have washed away or obscured field signs beneath elevated water levels.
- 7.91 The surveys along the Access Track Site were conducted outside the water survey season, which is considered to be from mid-May to September. While water voles are less active in winter, making it difficult to identify feeding signs, potential burrows and suitable habitats can still be recognized during this season.
- 7.92 The surveys of the Main Wind Farm Site were undertaken in May and June 2023. NatureScot guidance for protected species states that surveys are typically valid for either two years or two additional survey periods, unless it is clearly evident that there has been no substantive change in number, distribution or activity of [the species] since the original survey was undertaken. Since 2023, no significant changes have occurred at the Main Wind Farm Site that would be expected to lead to a change in habitat suitability or distribution of any protected species (e.g., no planting/felling, no changed in grazing). Considering this, the findings from May and June 2023 are still considered to be representative of current conditions at the Main Wind Farm Site and suitable for inclusion in this EIA.

Bats

- 7.93 No biological records were available for within a 10km buffer of the site and; no bat group exists in the area that could be consulted. Bats are likely to be under recorded in the area due to the remote location of the Site. The lack of historical records for the area

limits the ability to fully assess the site for previous bat presence, but the surveys will confirm their current use of the Site.

- 7.94 Additionally, the lack of access permissions for the Access Track Site and, therefore, the absence of detailed Preliminary Roost Assessments (PRA) for buildings limited the ability to identify potential roosts within the Access Track Site.

Aquatic Ecology

- 7.95 Field surveys for the Main Wind Farm Site were undertaken in October 2023, within a period of unsettled and mixed weather and as a result, flows in the watercourses were suboptimal but still within normal range. On the 4th of October, clarity in the watercourse Abhainn a' Chnocain was markedly worse than the previous day, due to an increase in flow from overnight rain and increased siltation caused by works taking place in the watercourse immediately upstream of the dam, making it more difficult to see, and therefore capture fish. Due to this, one reach, AD-6, could not be fully surveyed due to ineffective fishing (see Technical Appendix 7.4 and Figure 2 within). Only one electrofishing pass was undertaken here, and minimum densities (number of fish per 100m²) were calculated.
- 7.96 One of the reaches within the Main Wind Farm Site Survey Area, AD-3 on Allt Domhain, was small in size (narrow and shallow), making fully quantitative (multi-pass) electrofishing unsuitable. A single electrofishing pass in a defined reach was completed, but no fish were seen or captured. Due to this, a spot check survey was completed at the downstream extent of the watercourse, providing only qualitative information on fish species and age classes present at the site.
- 7.97 Due to the small number of fish captured from all watercourses during the baseline population survey, Zippin and Carle & Staub population densities, which would normally be calculated, would not yield reliable results. Therefore, minimum densities (number of fish per 100m²) have been calculated from the fully quantitative multi-run surveys.

Assessment of Ecological Features

- 7.98 This assessment considers sensitive ecological receptors which are likely to be affected during the construction, operation or decommissioning phases of the proposed development. Where no significant environmental effects are anticipated on an ecological feature, or where no legal protections or conservation designations are afforded to a feature, these have been scoped out of any further assessment.

Effects Scoped Out

- 7.99 Assessment of statutory designated sites (which have a qualifying ecological feature) that are located more than 2km from the proposed development have been scoped out, due to lack of connectivity between the designated site and the proposed development (Table 7.15).

Table 7.15: Ecological Features Scoped out of the EIA

Ecological Features	Justification
Main Wind Farm Site and Access Track Site Habitats >10m from proposed infrastructure or of low conservation value	These habitats have been scoped out of the assessment as they are either outwith a 10m buffer of the footprint of the proposed development on the Main Wind Farm Site or the Access Track Site, and so no direct or indirect, permanent or temporary, loss of these habitat types is expected. Habitats of low conservation value are also scoped out of the assessment.
GWDTEs	The hydrogeological assessment concluded that all of the potential GWDTEs identified based on their NVC communities were unlikely to be groundwater-dependent, based on geological conditions. As such, GWDTEs have been scoped out of this assessment.
Badger	Despite the habitat within the Site Survey Area being suitable for the species, no field signs for badger were identified during the surveys. As such, badger have been scoped out of the assessment.
Great crested newt	Great crested newts were scoped out of the assessment as the Site falls outside the current understood range for this species (NatureScot, 2024b).
Pine marten	Despite the habitat within the Site Survey Area being suitable for the species, very few signs indicating their presence were identified, and due to the minimal amount of woodland (potential denning habitat) loss anticipated, effects on pine marten are assumed negligible, and so they have been scoped out of the assessment.
Red squirrel	Small pockets of suitable woodland habitat for this species were present within the Site Survey Area. However, due to the lack of field signs identified during the surveys and the minimal amount of woodland (potential drey construction habitat) loss anticipated, effects on red squirrel are assumed negligible, and so they have been scoped out of the assessment.
Wildcat	Wildcat was scoped out of the assessment as the Site falls outside of the current understood range for this species (Campbell et. al., 2023).

Important Ecological Features Assessed in Full

7.100 Nine IEFs were identified that will be assessed in full in this EIA ().

Table 7.16: Important Ecological Features Scoped into the EIA

IEFs	Summary of Baseline	Legislative Protection Status	Conservation Interest
Bellochantuy Bay LNCS	Bellochantuy Bay LNCS is approximately 1.5km from the Access Track Site. It is located directly adjacent to the mouth of the Barr Water, and so is hydrologically linked to the Site.	N/A	Local Nature Conservation Site (LNCS)
Habitats within 10m of proposed infrastructure	The following UK Habitat Classification (UKHab) categorised habitats, subcategorised by NVC codes, have been identified as peatland habitats which will be directly impacted by the proposed development: - Blanket bog (H7130 Annex 1 habitat): M20b - European dry heaths (H4030 Annex 1 habitat): H10 - Purple moor grass and rush pasture: mosaic of M23a, M23b, M25, W23; M23b/W23; M25; M23a/M25; M25a - Upland flushes, fens and swamps: M6, M6c, M6d - Upland heathland/Blanket bog (H7130): M15, M15c, M17a - Upland mixed ashwoods: W7, W9b - Western acidic oak woodland (H91A0 Annex 1 habitat): W11, W11a	Blanket bog, European dry heaths and Western acidic oak woodland are included within Annex I of the EU Habitats Directive.	All of the identified habitats are either UK BAP priority habitats, listed on the SBL and/or listed on the LBAP.
Rivers	Multiple rivers and watercourses exist within the Main Wind Farm Site and Access Track Site, some of which offer suitable habitat for a number of potential species of conservation concern, including Atlantic salmon and FWPM.	Protected under the Water Environment and Water Services (Scotland) Act.	Support UK BAP fish species. UK BAP priority habitats, SLB listed habitats and LBAP (Argyll and Bute) selected habitat
Otter	Evidence of otters was found in the Survey Area, with two spraints at the Main Wind Farm Site and numerous spraints along with seven potential resting sites at the Access Track Site, indicating suitable foraging,	European Protected Species (EPS) under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).	UK BAP Priority Terrestrial Mammal Species, SBL listed, LBAP listed.

IEFs	Summary of Baseline	Legislative Protection Status	Conservation Interest
	commuting and resting opportunities/habitats.		
Water vole	Evidence of water voles was found at the Main Wind Farm Site, including potential observations of the species, as well as potential food caches and potential burrows. Suitable habitats were identified at both Sites, although these were more limited in the Access Track Site.	Protected under the Wildlife and Countryside Act, 1981.	UK BAP Priority Terrestrial Mammal Species, SBL listed, LBAP listed.
Reptiles	Several common lizards and two adders were identified at the Main Wind Farm Site, along with one common lizard at the Access Track Site. The Site offers suitable habitats for reptiles, including Molinia tussocks, bracken, dense brash mats, and drystone walls for basking, foraging, and refuge.	Limited protection under Wildlife and Countryside Act 1981 (as amended).	UKBAP priority species: Common lizard, adder and slow worm. SBL listed species: Common lizard and adder. LBAP listed species: Adder only.
Bat species	Watercourses and woodland edges offer moderate foraging and commuting habitats. Potential roost features for bats were identified only at the Access Track Site, with eight buildings and 24 trees needing further assessment. Activity surveys in 2023 recorded seven bat species, with the highest activity at Location 11, particularly for common and soprano pipistrelles. <i>Nyctalus</i> species showed low activity and are considered vulnerable due to their foraging habits at turbine height. The overall risk assessment for the development indicates a low risk for all bat species based on current guidance.	All species of bats occurring in Scotland are classed as European Protected Species (EPS) under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).	UK BAP Priority Terrestrial Mammal Species, SBL listed, LBAP listed.
Fish and FWPM	Suitable habitats for Atlantic salmon and brown trout in the upper Barr Water, with limited potential for FWPM. In Abhainn a' Chnocain, salmon were present downstream of migration obstacles, while brown trout were found upstream, with some potential habitat for FWPM but none observed. The Main Wind Farm Site assessment revealed widespread brown trout, and overall spawning habitat was limited. Natural obstacles indicate the	Species are listed on Schedule 3 of the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). Salmon and freshwater fish are protected under the Salmon and Freshwater Fisheries Act 2003.	UK BAP priority fish species, SBL listed, LBAP listed.

IEFs	Summary of Baseline	Legislative Protection Status	Conservation Interest
	trout are likely resident brown trout as opposed to migratory sea trout. No brook lamprey or European eel were collected, although one eel was observed, and no salmon were found, likely due to barriers downstream.	FWPM are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).	

Future Site Baseline

- 7.101 The EIA Regulations require that 'a description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the project as far as natural changes from the baseline scenario can be assessed with reasonable effort, on the basis of the availability of environmental information and scientific knowledge' is included within an EIA.
- 7.102 If the Proposed Development does not come forward, an assessment of the 'without development' future baseline conditions have been carried out and is described within this section.
- 7.103 It is considered unlikely that there would be any significant changes to the baseline conditions within the Site. The current land use within the Access Track Site is dominated by agriculture, and mostly grazing land, and the Main Wind Farm Site is primarily used for livestock grazing. If the area encompassed within the Site remained undeveloped, the land is expected to continue to be used in the same manner. As a result, it is assumed grazing from livestock and deer would continue, and existing peat drains will continue to further degrade the existing bog habitats present around the Survey Area.
- 7.104 Changes could occur as a result of climate change, though these are anticipated to be minor or negligible over the lifetime of the Proposed Development.

Identification and Evaluation of Key Effects on IEFs

- 7.105 Potentially adverse environmental effects from the construction phase include the following:
- Habitat loss or degradation, resulting in a loss of habitats suitable for supporting protected species;
 - Alterations to habitat composition as a result of disruption to the existing hydrological connectivity of habitats;
 - Pollution events including chemical/fuel spillage, siltation of watercourses for construction, and light and noise pollution;
 - Disturbance to protected species may similarly occur, reducing their ability to utilise the Site as part of their territories for foraging or commuting.
 - Protected species may be at risk of injury or mortality directly from construction machinery or vehicle traffic.
- 7.106 Potentially adverse effects from the operational phase such as pollution events related to maintenance, road fatalities are unlikely to impact habitats or species presence further. The main risk is to bat species and barotrauma or collision with turbine blades.
- 7.107 Potentially adverse effects from decommissioning are considered to be similar in nature to those of the construction phase; however, these are generally thought to be at a smaller scale and are therefore likely to be smaller in magnitude and are therefore not considered further in this impact assessment.

Construction Effects

Bellochantuy Bay LNCS

- 7.108 Bellochantuy Bay LNCS is approximately 1.5km from the Site and is hydrologically connected to the Site by the Barr water, which enters the sea directly adjacent to the LNCS. Bellochantuy Bay is determined to have **Regional** conservation significance by Table 7.4, which translates to **medium** sensitivity in Table 7.5.
- 7.109 The only possible effect to Bellochantuy Bay LNCS from the Proposed Development, is by pollution event including chemical/fuel spillage or sediment ingress to the Barr Water. Pollution of the Barr Water could significantly degrade water quality, harming aquatic life, including mortality in extreme cases, and disrupting ecosystems within Bellochantuy Bay. This could ultimately lead to habitat loss and reduced biodiversity.
- 7.110 Embedded mitigation outlined in this report includes the following:
- Placing main infrastructure outside a 50m buffer of all known watercourses to minimise the likelihood of sedimentation or pollution occurring;
 - Production of a PPP within the CEMP to identify potential pollutants, mitigate risks, and implement best practices to minimise pollution during construction;
 - A suite of pre, during and post-construction water quality monitoring will be carried out. This monitoring procedure will be followed to reduce the risk of an impact to habitats; and
 - Presence of an EnvCoW throughout the duration of the construction phase to monitor compliance with the PPP and advise on related issues.
- 7.111 Successful implementation of the embedded mitigation means the duration of effects by sedimentation are expected to be short term according to Table 7.7, mostly limited to periods during and succeeding heavy rain.
- 7.112 Duration of effects caused by chemical/fuel spillage would depend on the extent of the spillage, which will be mitigated by measures outlined in the PPP, and so are also expected to be short term according to Table 7.7.
- 7.113 The magnitude of these effects, assuming successful implementation of the embedded mitigation, is regarded as **low**, as per Table 7.6. Combining the sensitivity and magnitude using the matrix in Table 7.8, the significance of the effects from the proposed development on Bellochantuy Bay LNCS is **minor adverse** and therefore, **not significant**.

Habitats

- 7.114 Potential effects to habitats during the construction phase of the Proposed Development have been considered. Effects to habitats are dependent on the method of construction and the habitat present. Three separate parameters have been used to predict the potential effects to habitats present from the construction phase of the Proposed Development:

- Permanent Direct Habitat Loss – the permanent footprint of any component of the infrastructure of a development which would not be restored following construction. This includes tracks, turbine bases and hardstandings, substations and all areas of permanent drainage;
- Temporary Direct Habitat Loss – any infrastructure component that would be restored following construction, for example, turbine laydown areas and construction compounds; and
- Permanent Indirect Habitat Change – a 10m buffer has been applied to the permanent footprint for each component of the Proposed Development within the Site boundary to account for the potential alterations to habitats through changes to hydrological regimes.

7.115 Table 7.17 details the habitats affected by the proposed development, the likely type of effect, the aggregate area and the percentage of the Site's habitat which will be affected.

Table 7.17: Predicted Effects to Habitat Present from Construction of the Proposed Development

NVC Habitat Code	Permanent Direct Habitat Loss (ha)	Temporary Direct Habitat Loss (ha)	Permanent Indirect Habitat Change (ha)	Total Area of Habitat Affected (ha)	Total Area of Habitat Within Site (ha)	% of Total Habitat Within Site Affected
Peatland Habitats						
M6	0.04	0.14	-	0.18	0.77	23.39
M6c	0.16	0.33	-	0.49	16.61	2.93
M6d	0.62	1.46	0.27	2.35	33.16	7.07
M15	0.04	0.14	-	0.18	4.92	3.66
M15c	0.01	0.04	-	0.05	0.54	8.39
M17a	0.23	0.37	-	0.59	25.68	2.31
M20b	0.05	0.03	-	0.08	1.20	6.48
M23a, M23b, M25, W23	0.16	0.49	-	0.65	11.94	5.46
M23b/W23	0.002	-	-	0.002	0.27	0.74
M25	0.80	2.83	-	3.63	39.45	9.20
M25/M23a	0.28	1.02	-	1.30	22.34	5.82
M25a	9.43	11.88	0.28	21.58	246.80	8.75
M25b	0.02	0.07	-	0.09	1.59	5.40
Total Peatland	11.83	18.79	0.55	31.16	405.27	7.69
Non-Peatland Habitats						
H10	0.00	0.02	-	0.03	0.05	55.54
h1b	0.03	0.07	-	0.09	5.63	1.68
W11	0.02	0.08	-	0.10	2.16	4.85
W11a	0.02	0.08	-	0.10	0.23	42.69
W4	0.04	0.08	-	0.12	0.31	39.51
W7	0.09	0.70	-	0.79	12.82	6.13

NVC Habitat Code	Permanent Direct Habitat Loss (ha)	Temporary Direct Habitat Loss (ha)	Permanent Indirect Habitat Change (ha)	Total Area of Habitat Affected (ha)	Total Area of Habitat Within Site (ha)	% of Total Habitat Within Site Affected
W9b	-	0.02	-	0.02	0.51	4.72
Total Non-Peatland	0.19	1.06	0	1.26	21.70	5.78
Total Peatland and Non-Peatland Habitats Affected						
Total Peatland & Non-Peatland	12.02	19.85	0.55	32.42	426.97	7.59
All Habitats within Main Wind Farm Site and Access Track Site						
All habitats	-	-	-	32.42	667.48	4.86

- 7.116 The combined areas of the Main Wind Farm and Access Track Sites is 667.48ha. Total permanent direct habitat loss as a result of the proposed development is approximately 12.02ha, which equates to approximately 1.80% of all habitats within the Main Wind Farm and Access Track Sites.
- 7.117 In addition to the permanent direct effects to habitats from the footprint of the proposed development, consideration has been given to the temporary effects from areas of infrastructure such as construction compounds. This equates to a temporary effect to habitats of 19.85ha or 2.97% of the total habitats present.
- 7.118 Furthermore, consideration has been given to indirect effects through changes to hydrological regimes from the footprint of the development to habitats within 10m of the footprint. The total indirect permanent effect to habitats is therefore calculated as 0.55ha or 0.08% of the total habitats present.
- 7.119 Blanket bog (H7130), European dry heaths (4030) and Western acidic oak woodland (H91A0) are all Annex I habitats which gives them international status. These habitats are considered uncommon in the Argyll and Bute, and so are given **National** conservation status by Table 7.4, which translates to a sensitivity of **high** in Table 7.5.
- 7.120 Purple moor grass and rush pastures, upland flushes, fens and swamps, upland heathland are both habitats listed as UKBAP priority habitats, as well as listed on the SBL and LBAP. Upland flushes, fens and swamps are considered rare in Argyll and Bute, whereas purple moor grass and rush pastures are common. Using the regional status of upland flushes, fens and swamps, both of these habitats are given a **National** conservation status by Table 7.4, which translates to a sensitivity of **high** in Table 7.5.
- 7.121 Woodlands are a priority habitat type in the Argyll and Bute LBAP but other broadleaved woodland considered common in Argyll and Bute. Given this, this habitat is given a conservation status of **Local** by Table 7.4 and a sensitivity of **low** in Table 7.5.
- 7.122 In addition to the direct and indirect effects of construction to the habitats present, as outlined above, further effects which might impact habitats include pollution related events such as oil/chemical spills or sedimentation from run-off of silt laden waters, as well as dust pollution in dry weather.

- 7.123 General pollution prevention and best practice measures will be implemented to reduce these risks in a PPP as part of the CEMP. A suite of pre, during and post-construction water quality monitoring will also be carried out to reduce the risk of an impact to habitats.
- 7.124 Overall, a small proportion of peatland (7.69%) and non-peatland (5.78%) habitats within the Main Wind Farm and Access Track Sites will be directly or indirectly affected by the proposed development. Therefore, the magnitude of impact is **low** as per Table 7.6. Many of the peatland habitats on the site were found to be degraded due to various pressures such as grazing and draining, and peat depth surveys also recorded peat in a degraded state. Combining the sensitivity of high and magnitude using the matrix in Table 7.8, alongside the use of professional judgement, the significance of the effect from the proposed development on habitats is **moderate adverse** and therefore, **significant**.
- 7.125 The magnitude of the impacts on other broadleaved woodland (low sensitivity) by the proposed development is considered **low**, as only a small total area of this habitat (W4) will be impacted by the proposed development (0.12ha). Combining the sensitivity and magnitude using the matrix in Table 7.8, other broadleaved woodland is **negligible to low adverse** and therefore, **not significant**.

Rivers

- 7.126 Rivers are a UKHAB priority habitat as well as listed on the SBL and LBAP for Argyll and Bute. This habitat therefore has national conservation status however, as rivers, and ones of this quality, are common in Argyll and Bute, the conservation importance is determined to be **Regional** as per Table 7.4, which translates to a sensitivity of **medium**, as per Table 7.5.
- 7.127 Effects on this IEF from the proposed development include pollution from chemical/fuel spillage or sediment ingress from construction works. Additionally, there is potential loss of habitat, both in-channel, and bankside, at the water crossing points.
- 7.128 Embedded mitigation outlined in this report includes the following:
- Placing main infrastructure outside a 50m buffer of all known watercourses to minimise the likelihood of sedimentation or pollution occurring;
 - Production of a PPP within the CEMP to identify potential pollutants, mitigate risks, and implement best practices to minimise pollution during construction;
 - A suite of pre, during and post-construction water quality monitoring will be carried out. This monitoring procedure will be followed to reduce the risk of an impact to habitats;
 - Presence of an EnvCoW throughout the duration of the construction phase to monitor compliance with the PPP and advise on related issues; and
 - Where water crossings are required, these would be sensitively designed to:
 - Allow safe passage of otter, water vole, and fish species;
 - Avoid alterations of the water course being crossed; and
 - Retain habitat directly adjacent to the crossing.

7.129 The magnitude of these effects, assuming successful implementation of the embedded mitigation, is regarded as **low**, as per Table 7.6. Combining the sensitivity and magnitude using the matrix in Table 7.8, the significance of the effects from the proposed development on Rivers within and the Site is **minor** and therefore, **not significant**.

Otter

7.130 Otter are a European protected species under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) and a common species in Argyll and Bute, that are widespread throughout the region. As such, this IEF is of **Regional** conservation importance from Table 7.4 and therefore, of **medium** sensitivity in Table 7.5.

7.131 The loss of habitat within the Survey Area has the potential to affect otter habitat for commuting, foraging and refuge. Pollution events including oil/chemical spillage or sedimentation of watercourses, has the potential to affect successful foraging for otter. Additionally, construction of water crossing points for the proposed development could impact commuting corridors for otter. Finally, the construction activities have potential to disturb otter, if within 30m of an active resting site, or within 200m of a natal holt, or result in injury and/or mortality.

7.132 Embedded mitigation outlined in this report includes the following:

- Placing main infrastructure outside a 50m buffer of all known watercourses to minimise the likelihood of sedimentation or pollution occurring;
- Production of a PPP within the CEMP to identify potential pollutants, mitigate risks, and implement best practices to minimise pollution during construction;
- A suite of pre, during and post-construction water quality monitoring will be carried out. This monitoring procedure will be followed to reduce the risk of an impact to habitats;
- Presence of an EnvCoW throughout the duration of the construction phase to monitor compliance with the PPP and SPP for otter and advise on related issues;
- Where water crossings are required, these would be sensitively designed to:
 - Allow safe passage of otter;
 - Avoid alterations of the water course being crossed; and
 - Retain habitat directly adjacent to the crossing.
- Pre-construction surveys will be completed prior to commencement of the construction phase to ensure an up-to-date baseline is available of otter utilisation of the proposed development area to minimise disturbance to this sensitive species;
- An otter specific Species Protection Plan (SPP) will be written as a supporting document to the detailed CEMP and include precautionary mitigation and good practice procedures relating to otter; and
- If disturbance to otter (i.e. works anticipated within 30m of an otter resting site) is anticipated at any point during the development, a license will from NatureScot will be acquired prior to any potentially disturbing works.

7.133 The magnitude of the above effects, assuming successful implementation of the embedded mitigation, is regarded as **low**, as per Table 7.6, while short term in duration.

Combining the sensitivity and magnitude using the matrix in Table 7.8, the significance of the effects from the proposed development on otters within and the Site is **minor** and therefore, **not significant**.

Water Vole

- 7.134 Water vole are protected under UK legislation, the Wildlife and Countryside Act 1981 (as amended). They are also listed as a priority species on the UKBAP, SBL and LBAP. They are considered localised in Argyll and Bute, and so deemed uncommon. As such, this IEF is of **National** conservation importance from Table 7.4 and therefore, of **high** sensitivity in Table 7.5.
- 7.135 The loss of habitat within the Survey Area has the potential to affect water vole habitat for commuting, foraging and refuge. Pollution events including oil/chemical spillage or sedimentation from construction works has the potential to affect foraging areas for water vole. Additionally, construction of water crossing points for the proposed development could impact commuting corridors for water vole. Finally, the construction activities have potential to disturb water vole, if within 10m of an active water vole burrow or result in injury or mortality.
- 7.136 Embedded mitigation outlined in this report includes the following:
- Placing main infrastructure outside a 50m buffer of all known watercourses to minimise the likelihood of sedimentation or pollution occurring;
 - Production of a PPP within the CEMP to identify potential pollutants, mitigate risks, and implement best practices to minimise pollution during construction;
 - A water vole specific Species Protection Plan (SPP) will be written as a supporting document to the detailed CEMP and include precautionary mitigation and good practice procedures relating to water vole;
 - A suite of pre, during and post-construction water quality monitoring will be carried out. This monitoring procedure will be followed to reduce the risk of an impact to habitats;
 - Presence of an EnvCoW throughout the duration of the construction phase to monitor compliance with the PPP and SPP for water vole and advise on related issues;
 - Where water crossings are required, these would be sensitively designed to:
 - Allow safe passage of water vole;
 - Avoid alterations of the water course being crossed; and
 - Retain habitat directly adjacent to the crossing.
 - Pre-construction surveys will be completed prior to commencement of the construction phase to ensure an up-to-date baseline is available of water vole utilisation of the proposed development area to minimise disturbance to this sensitive species; and
 - If disturbance to water vole (i.e. works anticipated within 10m of a water vole burrow) is anticipated at any point during the development, a license will from NatureScot will be acquired prior to any potentially disturbing works;

7.137 The magnitude of the above effects, assuming successful implementation of the embedded mitigation, is regarded as **low**, as per Table 7.6, while short term in duration. Combining the sensitivity and magnitude using the matrix in Table 7.8, alongside the use of professional judgement, the significance of the effects from the proposed development on water vole within and the Site is **minor** and therefore, **not significant**.

Reptiles

7.138 Reptiles found on mainland Scotland, namely adder, common lizard and slow worm, are all given limited protection under UK legislation, the Wildlife and Countryside Act 1981 (as amended). These species are considered widespread in Argyll and Bute. As such, this IEF is of **Regional** conservation importance from Table 7.4 and therefore, of **medium** sensitivity in Table 7.5.

7.139 The loss of habitat within the Survey Area has the potential to affect reptile habitat for commuting, foraging, basking and refuge. Reptiles may also be at risk of injury or mortality directly from construction machinery or vehicle traffic.

7.140 Embedded mitigation outlined in this report includes the following:

- A reptile specific Species Protection Plan (SPP) will be written as a supporting document to the detailed CEMP and include precautionary mitigation and good practice procedures relating to reptiles;
- Presence of an EnvCoW throughout the duration of the construction phase to monitor compliance with the SPP for reptiles and advise on related issues;
- Where water crossings are required, these would be sensitively designed to retain habitat directly adjacent to the crossing.

7.141 The magnitude of the above effects, assuming successful implementation of the embedded mitigation, is regarded as **low**, as per Table 7.6, while short term in duration. Combining the sensitivity and magnitude using the matrix in Table 7.8, the significance of the effects from the proposed development on reptiles within and the Site is **minor** and therefore, **not significant**.

Bats

7.142 Bats are a European protected species under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). Limited information regarding the distribution of bat species in Argyll and Bute is available so a precautionary approach is taken, and the species present on Site are assumed uncommon. As such, this species is considered to be of **National** conservation importance from Table 7.4 and therefore, of **high** sensitivity in Table 7.5.

7.143 The loss of habitat within the proposed development has the potential to affect bat habitat for commuting and foraging, although this is anticipated as being a negligible impact as only a small amount of woodland/tree removal is possible to accommodate the crossing of Access Track Option 1 over Allt an Uamha, the Barr Water and Abhainn a' Chnocain. However, there is potential for disturbance to bats roosting within trees and buildings during construction of the Access Track Site.

7.144 Embedded mitigation outlined in this report includes the following:

- Potential roosts in buildings/structures and trees within 30m of the construction works for the proposed development, identified in the Technical Appendix 7.2: Bat Survey Report, will be further investigated to determine presence/absence of bat roosts and the subsequent species present;
- If disturbance to bats (i.e. works anticipated within 30m of a bat roost) is anticipated at any point during the development, a license will from NatureScot will be acquired prior to any potentially disturbing works;
- A bat specific Species Protection Plan (SPP) will be written as a supporting document to the detailed CEMP and include precautionary mitigation and good practice procedures relating to bats;
- Presence of an EnvCoW throughout the duration of the construction phase to monitor compliance with the SPP for bats and advise on related issues; and
- Where water crossings are required, these would be sensitively designed to retain habitat directly adjacent to the crossing.

7.145 As no bat emergence surveys have been carried out to date, the absence of roosts cannot be confirmed.

7.146 The magnitude of the above effects, assuming successful implementation of the embedded mitigation, is regarded as **low**, as per Table 7.6, while short term in duration.

7.147 Combining the sensitivity and magnitude using the matrix in Table 7.8, and use of professional judgement, the significance of the effects from the proposed development on bats within and the Site is **minor** and therefore, **not significant**.

Fish and FWPM

7.148 Atlantic salmon, brook lamprey and river lamprey are all listed under Annex II of the Habitats Directive and European eel are a Critically Endangered IUCN red list species (Pike *et. al.*, 2020). Brown/sea trout receive a lower level of protection to Atlantic salmon, but given their similarities in ecology, the assessment for Atlantic salmon is considered appropriate for brown/sea trout. Atlantic salmon, sea lamprey and river lamprey are all priority species under the Argyll and Bute LBAP. Atlantic salmon, brown/sea trout, European eel and lamprey populations have all suffered declines in populations, including in Argyll and Bute (Argyll Fisheries Trust, 2009), although these three species are widely distributed in areas of suitable habitat in Argyll and Bute. The Barr Water and Abhainn a' Chnocain all received a Water Framework Directive classification of High for Fish and Fish Barrier in 2023². Considering the above, freshwater fish are considered to be of **regional** importance and **medium** sensitivity with respect to the proposed development.

7.149 Freshwater pearl mussels are listed under Annex II of the Habitats Directive and Schedules 5 and 6 of the Wildlife and Countryside Act (1981) and are a priority species under the Argyll and Bute LBAP. FWPM have a limited distribution across Scotland, and enhancing FWPM distributions is a conservation priority within Argyll and Bute (Argyll

² <https://informatics.sepa.org.uk/WaterClassificationHub/>

Fisheries Trust, 2009). Considering the above, FWPM are considered to be of **national** importance and **high** sensitivity with respect to the proposed development.

7.150 The proposed development has the potential to affect fish and FWPM through:

- Injury or mortality during working in watercourses when constructing new watercourse crossings;
- Temporary loss and fragmentation of habitats during construction of watercourse crossings;
- Permanent habitat loss beneath the footprint of the watercourse crossings; and
- Degradation of habitat due to pollutant inputs.

7.151 Embedded mitigation measures included in the proposed development include:

- A 50m buffer has been placed around all known watercourses with main infrastructure placed out with these buffers to minimise the likelihood of sedimentation and pollution occurring;
- Works within the Barr Water or Abhainn a' Chnocain should not be undertaken between mid-October and June, inclusive, to avoid the sensitive spawning and emergence periods for salmonids and brook lamprey;
- A fish rescue should be undertaken immediately prior to works within any watercourse,
- Where water crossings are required, these would be in line with relevant guidance (e.g., SEPA, 2010) and designed sensitively designed to:
 - Allow safe passage of otter, water vole, and fish species;
 - Avoid alterations of the water course being crossed;
 - Retain habitat directly adjacent to the crossing.
- Pre-construction surveys would be completed prior to commencement of the construction phase to ensure an up-to-date baseline is available of protected species utilisation of the proposed development area to minimise disturbance to sensitive species. Pre-construction surveys will specifically include updated fish habitat mapping (to target spawning and larval lamprey habitats) and a FWPM survey (Barr Water and Abhainn a' Chnocain only) around all areas where in-channel working is proposed.
- Baseline, during-construction and post-construction fish population surveys will be conducted to ensure an up-to-date baseline as well as capture design iterations, and then to monitor fish populations during and after construction of the proposed development; and
- A Pollution Prevention Plan (PPP) within the CEMP will identify potential pollution sources and outline strategies and best practices to minimise and mitigate the risk of pollution. It will include monitoring protocols, training for personnel, emergency response procedures, and will comply with environmental regulations to protect water quality and aquatic ecosystems. Measures within it may include adherence to relevant SEPA Pollution Prevention Guidelines (PPGs) and Guidelines for Pollution Prevention (GPPs).

7.152 When embedded mitigation measures are taken into account, the impact of injury/mortality, temporary and permanent habitat loss and fragmentation, and degradation of habitats is considered to be **low** in magnitude, resulting in an overall effect for both fish and FWPM that is **minor adverse** (not significant).

Cumulative Effects During Construction

7.153 Of the 14 wind farms identified within 10km of the proposed development (Table 7.18), 8 are operational and therefore no cumulative effects are anticipated with the construction of the proposed development. However, six wind farms are in a state where their construction/decommissioning may coincide with construction of the proposed development (Table 7.18).

7.154 These six wind farms are all at least 1.7km away from the proposed development. They are situated in different catchments (minimising the risk of pollution events in watercourses in the Barr Water catchment) and based on inspection of aerial imagery, it is considered unlikely that they will share access tracks with the proposed development. These wind farms are all in various stages of development and it is unlikely that all six will be in construction at the same time as the proposed development.

7.155 It is assumed that best practice measures will be in place during the construction of all of these wind farms, which will minimise potential impacts to protected species, habitats and designated sites during construction. Considering this, their distance from the proposed development and the presumed differing timelines, it is concluded that the cumulative impact of the construction of these six wind farms and the proposed development will be minor or negligible, and not significant.

Table 7.18: Wind farms to be considered in cumulative effects during construction assessment.

Name	Number of turbines	Status	Distance to proposed development (km)
West Torrisdale	9	In planning (January 2025 - awaiting decision)	1.7
Cnoc Buidhe	29	In planning (April 2025 - awaiting decision)	2.9
Clachaig Glen	12	Consented	4.1
Deucheran Hill 2	23	Scoping completed (January 2025), EIA in preparation	4.6
Killeen	9	In planning (August 2024 – awaiting decision)	6.0
Tangy IV Repower	16	Consented	7.4
Tangy I & II	22	Decommissioning in 2026	8.7

Operational Effects

- 7.156 Operation of the proposed development is considered to consist of the operation of the wind turbines themselves and routine maintenance activities. Routine maintenance is anticipated to consist of one or a small number of vehicles (e.g., vans or pickup trucks) accessing the site on an infrequent, but regular basis during the day.
- 7.157 There is a potential that during operation some construction activities may be required (e.g., to repair existing infrastructure). It is assumed that any maintenance which would require construction activities at the proposed development will follow best practice and guidance from the CEMP and be treated as if this was still under the construction phase.

Bellochantuy Bay LNCS

- 7.158 Considering the distance between the proposed development and this site, and the infrequent nature of maintenance activities at the site, no operational impacts have been identified for this IEF.

Habitats and Rivers

- 7.159 During operation, there is a potential for pollution events through fuel spills from maintenance vehicles. However, maintenance is expected to be infrequent and through the implementation of best practice (e.g., keeping on established tracks as much as possible, keeping spill kits in vehicles) it is considered that the impact of pollution events during operation will be **negligible**, resulting in **minor adverse** or **negligible (not significant)** effects on these IEFs.

Otter, water vole and reptiles

- 7.160 During operation there is a potential for disturbance to resting places, burrows or refugia for these IEFs, through noise from turbines in operation or visual disturbance during site maintenance. The turbines will all be situated at least 50m away from watercourses, minimising noise disturbance to any other resting places or water vole burrows that may become established. Site personnel could also cause disturbance, however site visits will be infrequent. Considering the above, the impact of disturbance during operation is considered to be **negligible** in magnitude, resulting in **minor adverse** or **negligible (not significant)** effects.
- 7.161 There is a potential for injury or mortality of individuals from site vehicles during operation. However, site visits will be infrequent and during the day, and vehicles will remain on established tracks where possible. Considering this, the magnitude of this impact is considered to be **negligible** in magnitude, resulting in **minor adverse** or **negligible (not significant)** effects.
- 7.162 There is a potential for pollution events from fuel spills from maintenance vehicles. However, through the implementation of best practice (e.g., keeping on established tracks as much as possible, keeping spill kits in vehicles) it is considered that the impact of pollution events during operation will be **negligible**, resulting in **minor adverse** or **negligible (not significant)** effects on these IEFs.

Bats

- 7.163 The proposed development was considered to provide a low risk for all bat species, based on a worst-case scenario, taking into account the Site risk level and the overall low activity level.
- 7.164 During operation, there is a potential for injury/mortality due to direct collision with turbine blades or barotrauma (injury/death caused by the change in air pressure in the wake of rotating turbine blades).
- 7.165 *Nyctalus* species (Leisler's and noctule) bats were recorded as having low activity at all static detector locations across the Site. These species are the most vulnerable to collision or barotrauma due to their flight activity, and they are also among the rarest species in Scotland. In particular, they frequently forage and commute high at potential turbine Rotor Sweep Height (RSH), and therefore may be subject to greater risk from the turbines than any other species identified during the activity surveys. Impacts on individual bat species and their population is detailed in full in Technical Appendix 7.2.
- 7.166 The Main Wind Farm site was assessed as providing moderate value for foraging and commuting bats, particularly along the existing watercourses in the main site.
- 7.167 It is considered in Britain that most bat activity is located within close proximity to habitats/features attractive to the species and as such, a minimum buffer of 50 m between the turbine blade tip and the edge of nearby habitat/features is recommended (NatureScot 2019a). For the proposed development, the watercourses provide the best foraging and commuting habitat, and these are already buffered by at least 50m as a part of the iterative design process.
- 7.168 Following successful implementation of embedded mitigation it is expected that the impact will be **low** in magnitude, resulting in a **minor adverse (not significant)** effect on bat species.

Fish and FWPM

- 7.169 During operation, there is a potential for pollution events as a result of fuel spills from maintenance activities. However, site visits will be infrequent and consist of one or a small number of site vehicles accessing the site. Vehicles will remain on established tracks where possible and will adhere to speed limits. Through the implementation of best practice (e.g., keeping on established tracks as much as possible, keeping spill kits in vehicles) it is considered that the impact of pollution events during operation will be **negligible**, resulting in **minor adverse** or **negligible (not significant)** effects on these IEFs.

Cumulative Effects in Operation

- 7.170 No cumulative effects were identified for any of the IEFs apart from bats. Eight wind farms were identified that would be in operation at the same time as the proposed development, and therefore could result in cumulative impacts to the bat population in the Kintyre Peninsula (Table 7.19).

Table 7.19: Wind farms to be considered in cumulative effects during operation assessment.

Name	Number of turbines	Status	Distance to proposed development (km)	Risk of bat community	Collision Risk Significance from EIA
Beinn an Tuirc I	46	Operational / Lifetime Extension Application	0.28	-	-
Blary Hill	14	Operational	0.6	Medium	Not significant
Beinn an Tuirc III	14	Operational	1.2	Low	-
West Torrisdale	9	In planning (January 2025 - awaiting decision)	1.7	Low	Not significant
Cnoc Buidhe	29	In planning (April 2025 - awaiting decision)	2.9	Medium	Not significant
Auchadaduie	3	Operational	3.3	-	-
Beinn an Tuirc II	19	Operational	3.6	-	-
Tangy IV Repower	16	Consented	7.4	-	Not significant

- 7.171 The Kintyre Peninsula is narrow, and the 8 wind farms assessed for cumulative impact are distributed laterally across the peninsula in a cluster that contains the proposed development (Table 7.19, Figure 7.6). The operational wind farms Blary Hill and Auchadaduie are situated west of the proposed development and Beinn an Tuirc I, II and III are situated to the east and southeast of the proposed development (Figure 7.6). Currently, Main Wind Farm Site serves as a turbine-free corridor that bats can use when migrating north or south along the middle of the peninsula. Were West Torrisdale and Cnoc Buidhe to be consented, when combined with the consented Tangy IV repowering development, a larger south to north corridor would be created from Lussa Loch north to Abhainn a' Chnocain at the southern extent of the proposed development (Figure 7.6).
- 7.172 The turbines for the proposed development will fill the existing gap between the operational wind farms, further limiting the turbine-free migrating habitat available to bats in the middle of the Kintyre peninsula.
- 7.173 The results of the surveys for the proposed development showed the highest bat activity at the static detector located close to Abhainn a' Chnocain, with low bat activity recorded at the remaining statics, which were situated at a higher elevation and in open moorland habitat closer to the proposed turbine locations. These results likely represent a preferential use of Abhainn a' Chnocain over open habitat for foraging and commuting.

However, bats will forage and commute across open habitats (Collins, 2023), as reflected in the static detector survey results.

- 7.174 The proposed development was designed sensitively and all turbines are buffered from watercourses by at least 50m. The closest turbine to Abhainn a' Chnocain is more than 200m away and up a slope approximately 30m higher in elevation than the watercourse. Abhainn a' Chnocain will not be impacted during operation of the proposed development, and thus this existing foraging and commuting route will still be available. The location of the nearest turbine, both in terms of distance away and elevation, further reduces collision impact for bats using this watercourse.
- 7.175 Although the impact is minimised by the placement of the turbines away from the existing commuting route along Abhainn a' Chnocain, it is concluded that the magnitude of the cumulative impact on bats is medium, resulting in a **moderate adverse (significant)** cumulative effect, before any additional mitigation measures (as described in the Additional Mitigation Measures and Monitoring section below). This conclusion is still considered to be applicable even if West Torrisdale and Cnoc Buidhe are ultimately not constructed, as the corridor is mainly created by the Beinn an Tuirc wind farms to the east and Blary Hill and Auchadaduie to the west.

Decommissioning Effects

- 7.176 Decommissioning activities within the Site are expected to be equal to or less than those carried out during the construction phase. Therefore, for the purpose of this assessment it is assumed that the level of disturbance is likely to be similar to the construction phase and the potential impact on each IEF is deemed to be equal to impacts encountered during the construction phase.
- 7.177 Due to the timescales between the commencement of operation and decommissioning, it is not possible to consider cumulative impacts of decommissioning as it is unclear what other developments may be in construction/decommissioning at the same time.

Additional Mitigation Measures and Monitoring

Peatland habitats

- 7.178 In addition to the embedded mitigation, an Outline Habitat Management Plan (OHMP) has been produced (Technical Appendix 7.6) to compensate for the loss of peatland habitats from the construction of the proposed development. At this stage it is proposed that an area greater than that affected by the development would be identified for peatland restoration using proven restoration techniques such as ditch blocking and drain reprofiling. Consultation with surrounding wind farm developments will also be completed to ensure where possible, synergies between all development Habitat Management Plans within the area are formed to maximise the benefit provided to the wider landscape.
- 7.179 The OHMP will be implemented to safeguard, restore and enhance peatland habitats affected by the proposed development in line with relevant policies of NPF4. The HMP will outline mitigation for impacts by delivering measurable improvements to biodiversity.

- 7.180 A Peat Management Plan will be delivered which will outline the handling of soils, turves and vegetation prior to and during reinstatement works to ensure all habitats return to pre-construction conditions.

Bats

- 7.181 To minimise the impact of the proposed development on bats using the Main Wind Farm Site, feathering the turbine blades is proposed. Feathering involves pitching turbine blades out of the wind to reduce rotation speeds below 2 rpm when the turbine is idling. This is a proven method for reducing mortality risk to bats, and is recommended wherever practically possible (NatureScot, 2021; Rodrigues *et. al.*, 2015).
- 7.182 Operational monitoring/carcass searches, completed monthly between May and September, are also proposed. The findings of these carcass searches may influence the operational regime of the proposed development.
- 7.183 A Bat Species Protection Plan is also recommended to outline the mitigation measures designed to protect bat species during both construction and operation of the proposed development.

Enhancement

- 7.184 The proposed development is situated predominantly on peatland habitats, and thus these habitats were targeted to deliver biodiversity enhancement in line with NPF4. In addition to proposed offsetting to compensate for peatland habitat loss, a further 10% of the baseline extent of peatland habitat will be restored, in line with NatureScot guidance for developments on peatlands (NatureScot, 2023). Further details are provided in Technical Appendix 7.6 Outline Habitat Management Plan and Biodiversity Enhancement Plan.

Residual Effects

Construction

- 7.185 Significant effects from construction were identified on 'blanket bog', 'Purple moor grass and rush pastures', and 'upland flushes, fens and swamps' when best practice and embedded mitigation were taken into account. To further compensate against these effects, an Outline Habitat Management Plan (OHMP) has been produced (Technical Appendix 7.6) which details further compensation and enhancement measures which will be implemented in order to counteract residual effects of habitat loss which is expected to arise from the construction phase.
- 7.186 At this stage it is proposed that an area greater than that affected by the proposed development would be identified for peatland restoration using proven restoration techniques such as ditch blocking and drain reprofiling. Therefore, the restoration of peatland habitats across the Site has the potential to result in a **minor beneficial** impact, which is **not significant**.

- 7.187 No other significant impacts were identified during construction, and all other effects were considered to be minor or negligible, when embedded mitigation measures were taken into consideration.

Operation

- 7.188 The impact of habitat fragmentation for bats due to the proposed development alone was considered to be **minor adverse** (not significant), and when considered cumulatively with other developments a **moderate adverse** (significant) effect was identified. Through correct application of the embedded mitigation measures and the additional mitigation measures and monitoring, it is expected that operational impacts, including cumulatively with other developments, will be **minor adverse** (not significant).
- 7.189 No other significant impacts were identified on any IEFs during operation of the proposed development.

Decommissioning

- 7.190 Decommissioning effects are considered to be the same or less than construction impacts. Best practice measures will be in place during decommissioning of the proposed development, and therefore it is concluded that all impacts will be either minor or negligible.

Summary

Table 7.20: Summary of Effects. Significant effects are in bold.

IEF	Sensitivity of receptor	Impact	Magnitude of impact	Predicted Effect	Significance of effect	Cumulative Effect	Additional Compensation/ Mitigation	Residual Significance	Residual effect
Construction & Decommissioning									
Bellochantuy Bay LNCS	Medium	Degradation due to pollution	Low	Minor adverse	Not significant	Minor adverse / negligible	None required	Minor adverse	Not significant
Habitats (blanket bog; European dry heaths; western acidic oak woodland; purple moor grass and rush pasture; upland flushes, fens and swamps; upland mixed ashwoods)	High	Temporary & permanent habitat loss	Low	Moderate adverse	Significant	Minor adverse / negligible	Peatland restoration as outlined in TA 7.5: Outline Habitat Management Plan and Biodiversity Enhancement Plan	Minor beneficial	Not significant
Habitats (other broadleaved woodland)	Low	Temporary & permanent habitat loss	Low	Minor adverse / negligible	Not significant	Minor adverse / negligible	None required	Minor adverse / negligible	Not significant
Rivers	Medium	Degradation due to pollution	Low	Minor adverse	Not significant	Minor adverse / negligible	None required	Minor adverse	Not significant
		Temporary & permanent habitat loss	Low	Minor adverse	Not significant	Minor adverse / negligible	None required	Minor adverse	Not significant
Otter & water vole	Medium & High	Temporary & permanent habitat loss and fragmentation	Low	Minor adverse	Not significant	Minor adverse / negligible	None required	Minor adverse	Not significant
		Habitat degradation due to	Low	Minor adverse	Not significant	Minor adverse / negligible	None required	Minor adverse	Not significant

Chapter 7: Ecology									
IEF	Sensitivity of receptor	Impact	Magnitude of impact	Predicted Effect	Significance of effect	Cumulative Effect	Additional Compensation/ Mitigation	Residual Significance	Residual effect
		pollution events							
		Disturbance, injury and/or mortality	Low	Minor adverse	Not significant	Minor adverse / negligible	None required	Minor adverse	Not significant
Reptiles	Medium	Temporary & permanent habitat loss	Low	Minor adverse	Not significant	Minor adverse / negligible	None required	Minor adverse	Not significant
		Injury or mortality	Low	Minor adverse	Not significant	Minor adverse / negligible	None required	Minor adverse	Not significant
Bat species	High	Temporary & permanent habitat loss	Low	Minor adverse	Not significant	Minor adverse / negligible	None required	Minor adverse	Not significant
		Disturbance to roosts	Low	Minor adverse	Not significant	Minor adverse / negligible	None required	Minor adverse	Not significant
Fish & FWPM	Medium & High	Temporary & permanent habitat loss and fragmentation	Low	Minor adverse	Not significant	Minor adverse / negligible	None required	Minor adverse	Not significant
		Habitat degradation due to pollution events	Low	Minor adverse	Not significant	Minor adverse / negligible	None required	Minor adverse	Not significant
		Injury or mortality	Low	Minor adverse	Not significant	Minor adverse / negligible	None required	Minor adverse	Not significant
Operation									
Bellochantuy Bay LNCS	Medium	No operational impacts.							
Habitats and Rivers	High, Medium, Low	Habitat degradation due to pollution events	Negligible	Minor adverse / negligible	Not significant	Minor adverse / negligible	None required	Minor adverse / negligible	Not significant

IEF	Sensitivity of receptor	Impact	Magnitude of impact	Predicted Effect	Significance of effect	Cumulative Effect	Additional Compensation/ Mitigation	Residual Significance	Residual effect
Otter, water vole & reptiles	Medium, High & Medium	Disturbance	Negligible	Minor adverse / negligible	Not significant	Minor adverse / negligible	None required	Minor adverse / negligible	Not significant
		Injury or mortality	Negligible	Minor adverse / negligible	Not significant	Minor adverse / negligible	None required	Minor adverse / negligible	Not significant
		Habitat degradation due to pollution events	Negligible	Minor adverse / negligible	Not significant	Minor adverse / negligible	None required	Minor adverse / negligible	Not significant
Bat species	High	Injury or mortality	Low	Minor adverse	Not significant	Minor adverse / negligible	None required	Minor adverse	Not significant
		Habitat fragmentation	Low	Minor adverse	Not significant	Moderate adverse (significant)	Feathering and carcass searching	Minor adverse	Not significant
Fish & FWPM	Medium & High	Habitat degradation due to pollution event	Negligible	Minor adverse / negligible	Not significant	Minor adverse / negligible	None required	Minor adverse / negligible	Not significant

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Allt Domhain Wind Farm

Environmental Impact Assessment Report Volume 1 Chapter 8: Ornithology

June 2025

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8 ORNITHOLOGY

Introduction

- 8.1 Energyfarm Allt Domhain Ltd ("the Applicant") are applying under Section 36 of the Electricity Act 1989 for the development of a wind farm situated on land located east of the A83, approximately 6.15km east of Glenbarr ("the Site"). The application includes up to nine wind turbines and associated infrastructure such as crane pads, access tracks, a substation and temporary construction compound. The current land use of the Site is predominantly substantial areas of moorland and rough grassland these habitats are also present along with conifer plantations along access to the proposed development.
- 8.2 The Site would be decommissioned after 35 years and the site restored in accordance with a decommissioning and restoration plan. The Site is solely within the planning authority of Argyll and Bute Council. The wind turbines and the associated infrastructure are collectively known as the Allt Domhain Wind Farm ("the Site"). The site location and provisional turbine layout are shown in Figure 8.1.
- 8.3 This chapter describes the methods used to establish the ornithological interests within the Site and surrounding area, together with the process used to determine the Nature Conservation Importance of the bird populations present. It explains the ways in which birds may be affected by the Site and assesses the likely effects of the Site and their significance. It complements the assessment of ecological effects in Chapter 7 (Ecology). Particular attention has been paid to species of high or moderate Nature Conservation Importance (target species). These include, but are not restricted to, species with national or international protection under the Wildlife and Countryside Act 1981 (and later amendments) (WCA) and the EU Birds Directive (79/409/EEC). Birds may be affected by the following phases of the Site:
- Construction: construction of tracks, turbines and hard-standings (including borrow pit operations).
 - Operation: turbine operation and associated maintenance activities; and
 - Decommissioning: the removal of installed structures and reinstatement of habitats where appropriate.
- 8.4 The potential effects of the Site on birds are:
- Habitat modification due to changes in land management or hydrology;
 - Direct habitat loss due to land take by wind turbine bases, access tracks and ancillary structures;
 - Indirect habitat loss due to turbine barrier effects and the displacement of birds as a result of construction and maintenance activities, or due to the presence of the operating wind turbines close to nesting, roosting or feeding sites or habitual flight routes;
 - Disturbance of bird behaviours due to construction and operational effects that do not result in displacement. This may result in reduced productivity and/or survival; and

- Collision: the killing or injury of birds following collision with rotating turbine blades and associated structures.
- Cumulative effects: the potential cumulative operational disturbance, displacement and annual collision mortality risk to IOFs

- 8.5 The assessment is based on information available at the time of writing, presented in the Ornithological Technical Report (Technical Appendix 8.1). This chapter is also supported by the Collision Risk Modelling Results (CRM) (Technical Appendix 8.2) and one confidential annex (Confidential Annex 8.3). Figures accompanying this chapter are provided in Volume 2 Figures 8.1-8.21. A detailed description of the Site is presented in Section 8.1 and Chapter 3: Project Description of this EIA Report.
- 8.6 This assessment has been carried out by Principal Ornithologist Darren Graham. Darren is a full member of the Chartered Institute for Ecology and Environmental Management (MCIEEM). He is also a NatureScot Schedule 1 Bird Licence holder and an experienced ornithologist with over 10 years' experience working with birds and their conservation. His recent experience within the last five years has been within the onshore wind sector and has included planning and undertaking baseline field surveys undertaking impact assessments within relevant planning frameworks (EIA & HRA) and planning ecological mitigation strategies.
- 8.7 This report has been reviewed by Associate Ornithologist Lisette Coiffait. Lisette has over 20 years' experience in ornithological assessment, surveying and research. Lisette has worked on a wide range of projects across Scotland and England, predominantly in the renewable energy and energy transmission sectors. This has included completion of numerous ornithological impact assessments (OIAs), EIA Report chapters and mitigation plans.

Legislation, Policy and Guidance

Legislation

- 8.8 The following legislation has been taken into account when undertaking this assessment:
- Environmental Impact Assessment Directive 2014/52/EU;
 - The Wildlife and Countryside Act 1981 (as amended) (WCA);
 - The Conservation (Natural Habitats, &c) Regulations 1994 (as amended) ('The Habitats Regulations');
 - The Nature Conservation (Scotland) Act 2004 (as amended);
 - The Council Directive on the Conservation of Wild Birds 2009/147/EC (The EU 'Birds Directive'); and
 - Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.

Policy

- 8.9 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 Argyll and Bute Local Development Plan 2 (LDP2)

(Argyll and Bute Council, 2024), relevant aspects of NPF4 (National Planning Framework 4)(2023), Planning Advice Notes and other relevant guidance.

- NPF4 Policy 1: Tackling the climate and nature crises;
- NPF4 Policy 3: Biodiversity;
- NPF4 Policy 4: Natural Places;
- NPF4 Policy 5: Soils;
- NPF4 Policy 6: Forestry, woodland and trees;
- LDP2 Policy 73: Development Impact on Habitats, Species and Biodiversity;
- LDP2 Policy 74: Development Impact on Sites of International Importance;
- LDP2 Policy 75: Development Impact on Sites of Special Scientific Interest (SSSIs) and National Nature Reserves;
- LDP2 Policy 76: Development Impact on Local Nature Conservation Sites (LNCS);
- LDP2 Policy 77: Forestry, Woodland and Trees;
- LDP2 Policy 78: Woodland Removal;
- LDP2 Policy 79: Protection of Soil and Peat Resources;
- Scottish Biodiversity Delivery Plan 2024-2030 (Scottish Government, 2024a); and
- Scottish Biodiversity Strategy (Scottish Government, 2024b).

Guidance

8.10 The following Guidance has been consulted while undertaking this assessment:

- NatureScot Guidance: Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas (2025a);
- NatureScot Guidance: use of avoidance rates in the NatureScot wind farm collision risk model, version 2 (2018);
- NatureScot Guidance: Recommended bird survey methods to inform impact assessment of onshore wind farms (2017¹);
- NatureScot Guidance: Assessing the cumulative impact of onshore wind energy developments (2025b).
- CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland.
- NatureScot Guidance: Environmental Impact Assessment Handbook (2018).

Assessment Methodology

8.11 The methodology comprised the following:

- Consultation;
- desk-based study;
- moorland breeding bird surveys (MBBS);

¹ The 2017 NatureScot Guidance was followed as it was current when the surveys were completed

- breeding raptor surveys;
- black grouse surveys;
- Vantage Point (VP) flight activity surveys;
- collision risk modelling (CRM); and
- cumulative assessment.

Consultation

- 8.12 A Scoping Opinion was issued by the Scottish Government Energy Consents Unit (ECU) on behalf of the Scottish Ministers to EnergieKontor Ltd. This was response to a request made by the Applicant dated 2nd February 2021 for a Scoping Opinion under the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 in relation to the Site.
- 8.13 The scoping opinion was issued following consultation with NatureScot, Scottish Environment Protection Agency ('SEPA') and Historic Environment Scotland ('HES'), all as statutory consultation bodies. Other bodies which the Scottish Ministers consider likely to have an interest in the Site by reason of their specific environmental responsibilities or local and regional competencies were also consulted.
- 8.14 In providing the scoping opinion, the Scottish Ministers, having had regard to current knowledge and methods of assessment, have taken into account the specific characteristics of the Site, the specific characteristics of the type of development and the environmental features likely to be affected.
- 8.15 The Scottish Ministers recommended that decisions on bird surveys – species, methodology, Viewpoints (VPs), viewsheds and duration – site specific and cumulative – should be made following discussion between the Applicant, the Argyll Raptor Study Group (ARSG), Argyll Bird Club, NatureScot and Royal Society for the Protection of Birds (RSPB) Scotland.
- 8.16 The purpose of the consultation was to obtain scoping advice from each consultee on environmental matters within their remit. Responses from consultees and advisors, including the standing advice from Marine Scotland Science (MSS), should be read in full for detailed requirements and for comprehensive guidance and advice.
- 8.17 Additional consultation was also undertaken with NatureScot between November-December 2024 regarding the validity of RPS ornithology data..
- 8.18 Details of the consultation with NatureScot and the RSPB are provided in Table 8.1

Table 8.1: Consultee comments and response /action taken

Consultee	Key Comments	Response/Action Taken
NatureScot Scoping Opinion April 2021	Ornithological surveys were undertaken at the Site covering the period April 2018 – March 2020. Two years of field data accords with our guidance. We usually recommend that work starts in February / March for sites where golden eagle are	Early breeding golden eagle surveys were completed in February and March in both 2019 and 2020, as well as in March 2023. See Section 3.3 Breeding Raptor Survey Methods of the Technical Appendix Report 8.1

Consultee	Key Comments	Response/Action Taken
	likely to be recorded, so that the survey period will cover two complete breeding seasons. As it is, while the period will have missed the beginning of the 2018 golden eagle breeding season, it will have covered the beginning of the 2020 season.	
	Our pre-application advice of October 2019 advised the consultants on the scope of the ornithological surveys, VP locations and key ornithological receptors. The proposed survey methodology appears to be in line with NatureScot guidance, although until we receive the EIA Report (EIA) and associated technical appendices, we cannot confirm that we are content with the ornithology surveys and assessments undertaken.	Baseline surveys were completed between 2018 – 2025 to inform the Ornithological Impact Assessment (OIA). See Section 3, Technical Appendix 8.1, Field Survey Methods.
	The summary of recorded flight activity helps to identify the species which could potentially be impacted by the proposal. The key species from this can be identified as osprey (<i>Pandion haliaetus</i>), hen harrier (<i>Circus cyaneus</i>), golden eagle (<i>Aquila chrysaetos</i>), curlew (<i>Numenius Arquata</i>), white-fronted goose (<i>Anser albifrons</i>), and black grouse (<i>Lyrurus tetrix</i>). Assessment of impacts on these species should encompass disturbance, displacement and collision risk mortality, both for this particular proposal, and cumulatively with other relevant developments that are consented or at an appropriate stage in the consents process. Impacts should also be considered at the regional population level for Natural Heritage Zone (NHZ) 14.	Species listed have been included in this ornithological impact assessment and the impacts from disturbance, displacement and collision risk mortality have been assessed for the Proposed Development (See Sections 8.96-8.148), as well as cumulatively with all appropriate wind farms within NHZ 14 (See Sections 8.149-8.160).
	We agree that the proposal is likely to have a significant effect upon the Kintyre Goose Roosts Special Protection Area (SPA) and its constituent Sites of Special Scientific Interest (SSSIs), so an appropriate assessment is required. Assessment of the impacts on the SPA should be broad-based, including impacts arising from ancillary structures and access roads.	Greenland White-Fronted geese (GWFG) have been included in this ornithological impact assessment (Sections 8.140-8.148) and the impacts from disturbance, displacement and collision risk mortality have been assessed for the Proposed Development, as well as cumulatively with all appropriate wind farms within NHZ 14, (See Sections 8.149-8.160). Having taken all available desk study data into consideration we have scoped out the need for an appropriate assessment.
	It is not clear to us that there is likely to be a significant effect upon the Arran Moors SPA. The developer should give consideration to the question of	Connectivity between the Site and qualifying features of Arran Moors SPA has been considered, resulting in scoping-out of

Consultee	Key Comments	Response/Action Taken
	connectivity between the Proposed Development location and that SPA, to help ascertain whether an appropriate assessment will be required. It may be that it can in fact be scoped out.	this SPA from the impact assessment and HRA.
	The ornithology chapter hasn't included plans for post-construction monitoring or carcass searches – it would be appropriate to propose a suitable programme to cover both of these areas.	Sections 8.162-8.167 of this report details post construction monitoring plans. RPS don't believe carcass searches are necessary due to the reported low collision risk including key ornithological receptors. It is unlikely carcass searches yield meaningful data.
	We note that the Proposal lies within a known golden eagle (GE) range. We consider there is potential for a high golden eagle collision risk being generated plus potential for significant displacement/ range abandonment both from this Proposal and cumulatively with others.	Collision risk mortality of golden eagle has been analysed in Technical Appendix 8.2: Collision Risk Modelling, and discussed within this Chapter (Sections 8.106-8.110), along with cumulative impacts of the collision risk reported in wind farms within NHZ 14 (See Sections 8.149-8.160).
	It appears that our GE survey recommendations have been taken into consideration which we welcome. In addition to the surveys, we advise that the Argyll Raptor Study Group (RSG) is contacted to gain information on other historical eagle nests within the site. The EIA should assess potential impacts on GE within NHZ 14 with reference to our guidance. During pre-application discussions for this Proposal, we requested that the Applicant explore options for habitat enhancement to mitigate for the potential loss of golden eagle range.	Argyll RSG were consulted in 2024 and data regarding golden eagle territories/nests were obtained and are reported within Confidential Annex 8.3. Potential impacts, including collision risk from the Proposed Development and other wind farms within NHZ 14, have been assessed and discussed in this Chapter (See Sections 8.149-8.160). Options for habitat enhancement to mitigate for the potential loss of golden eagle range have been detailed within the Habitat Management Plan (HMP) Technical Appendix 7.6
	A cumulative assessment should be undertaken of the impacts on the population of eagles in the whole of NHZ14, i.e. including all wind farms (and other developments) in NHZ14 where golden eagle have been recorded and are affected. If the potential impacts are going to significantly affect Favourable Conservation Status of GE within NHZ 14, or are getting close to doing so, then robust population modelling for GE should be undertaken and presented within the EIA Report.	Potential impacts, including collision risk from the Proposed Development and other wind farms within NHZ 14, have been assessed and discussed in this Chapter (See Sections 8.149-8.160). Golden eagle are not significantly impacted therefore population modelling is not required.
	While there has been some debate around the Predicting Aquila Territory (PAT) model and Golden Eagle Topography (GET) model, recent wind farm applications have used both models and compared them with the vantage point data they have gathered to assess the likelihood of use over the	The results of the GET model are presented in Volume 2, Figure 8.21 which supports the Technical Appendix 8.1: Ornithology Baseline Report. The model is discussed in this Chapter in Sections 8.104-8.105.

Consultee	Key Comments	Response/Action Taken
	Proposal site. We suggest that this approach would also work well here.	
	We are content with what the scoping report sets out with regard to assessing impacts on black grouse. We would only add, that the proposed lekking surveys should also cover the options for access tracks to the wind farm site.	Baseline surveys were completed between 2018 – 2025 to inform the OIA. Black grouse lekking surveys to be completed for access track options for Site in April and May 2025 and are included in this assessment.
The Council's Local Biodiversity Officer (LBO) Scoping response June 2021	Requested the applicant assesses the cumulative effects on the ornithological interests and both European and Protected Species in terms of this proposal and the adjacent wind farms	Cumulative collision risk effects on the target ornithological species, including European and Protected species, have been assessed in this Chapter.
NatureScot consultation October 2024	The data (collected in 2018 – 2020) will be older than 5 years when the application is submitted which is contrary to our bird survey guidance (i.e., valid data needs to have been collected within the last 5 years).	We acknowledge that NatureScot (2017) guidance advises that ornithology data are generally valid if they are collected within the last five years. Whilst RPS data collected from 2018 – 2020 will be beyond its five year shelf mark, RPS have conducted a full suite of additional surveys in the 2023 breeding season and vantage point surveys in the 2024 non breeding season the purpose of these were to update the earlier (2018-2020) surveys, which were completed over a continuous two-year period, and identify any major changes in flight activity and in Site use by breeding target species (including black grouse, waders, eagles, hen harrier and other raptors listed on Schedule 1 and/or Annex I. Results of the 2018-20 and 2023-2025 surveys are comparable, with no evidence of major changes in flight activity patterns or Site usage by target species. Survey effort can be found in Section 3, Field Survey Methods of the Technical Appendix 8.1 Report.
	Our guidance also states that substantial habitat changes that have occurred between the surveys and application submission could also affect the validity of survey data. We also note that keyhole felling was undertaken to accommodate the Blary Hill turbines but it appears from aerial photography that the entire woodland around Blary Hill was clearfelled post 2020. Again, this is likely to have caused disturbance and affected bird activity and distribution, particularly for sensitive species such as golden eagle, black grouse and hen harrier.	We acknowledge that changes in surrounding habitat due to felling of the Blary Hill plantation, could result in disturbance and changes in Site use by sensitive species such as black grouse, golden eagle and hen harrier. The potential implications of the habitat change at Blary Hill on black grouse (including any proposed habitat management, where this information is available) will be fully considered as part of the OIA. Impacts are assessed for Golden Eagle in Sections 8.101-8.110, GWFG in Sections 8.140-8.148 and black grouse in Sections 8.126-8.131. It should be highlighted that anthropogenic activities such as forestry operations, agricultural activities and construction and operation of developments regularly take

Consultee	Key Comments	Response/Action Taken
		place across any given landscape in Scotland, including the Kintyre peninsula. Consequently, background levels of disturbance are rarely constant, and large areas of habitat can rapidly change for a variety of reasons, including felling and wildfires. Therefore, datasets collected against some level of background disturbance and/or habitat change are often representative of local land use and linked bird communities.
	The 2018 - 2020 surveys were completed when pre-construction and construction works were being undertaken for the immediately adjacent Blary Hill Wind Farm and associated overhead powerline and it is likely that disturbance from these activities may have influenced bird activity at Allt Domhain. We advised RPS of this in October 2019 when we were consulted on the scope of the bird survey work after 18 months of survey effort had already been completed. With Blary Hill Wind Farm now operational since 2023, this may also be affecting bird activity and distribution within the adjacent Allt Domhain site.	Immediately to the west of the Proposed Development lies Blary Hill Wind Farm, which was consented in 2017. It is understood that construction of the wind farm commenced in mid-2020 (post initial COVID lockdowns) and became operational in 2022. This would mean that the 2018-2020 surveys took place prior to the construction phase of Blary Hill Wind Farm, while the 2023-2025 surveys took place whilst the development was operational. While we understand NatureScot's concerns regarding potential effects of disturbance from surrounding developments, surveys for the Proposed Development have taken place both prior to construction of Blary Hill Wind Farm and during its early operation, and there does not appear to be any evidence of significant changes in use of the Site and surrounding area by target species (including flight or breeding activity the key species identified above). It should also be noted that cumulative effects of all relevant developments in the surrounding area, including Blary Hill Wind Farm and the Beinn and Tuirc wind farm developments, on important ornithological features (IOF) have been fully considered as part of the OIA.
	We are also aware of potential changes to golden eagle ranges in the vicinity of the site (including the creation of a new territory to the southeast of Allt Domhain) since the original baseline survey work was undertaken.	Based on the baseline information, there does not appear to be any evidence of significant changes in golden eagle flight activity over the Site or occupancy/success of breeding territories in the wider area from the baseline data that we have. Although higher levels of activity by hunting golden eagles were recorded to the north of the Site during breeding raptor surveys in 2023 compared with those in 2019 and 2018, this was over 1 km from the Site. We have completed GET modelling for the Site, the results of which have been used to inform the OIA. Additionally, we are aware that ScottishPower Renewables (SPR) have been undertaking a 20-year monitoring programme targeted mainly at golden eagle at the Beinn an Tuirc developments

Consultee	Key Comments	Response/Action Taken
		and SPR were contacted to request that they share the data. Please refer to Section 4.4 of Technical Appendix 8.1. Given NatureScot are aware of potential changes to golden eagle ranges in the vicinity of the Site (including the creation of a new territory to the southeast), a request was made by RPS to NatureScot for any relevant information.
	Taking the above into account, we consider that there are significant material changes to the baseline conditions since the initial survey data was collected and that a second full year (to complement data collected in 2023) will be required to inform a robust EIA chapter. Furthermore, a second year of flight activity surveys would give us greater confidence in the CRM.	To ensure there was absolutely no concerning or significant changes in flight paths, ranges or nesting sites of sensitive ornithological features particularly GWFG and various raptor species of high conservation value, additional flight activity surveys were also conducted during the full 2024 non-breeding season. RPS have completed a sufficiently robust assessment based on the existing baseline data. The assessment has been supplemented, with additional data from Blary Hill and Beinn an Tuirc. Further, it is considered that additional surveys to date have not revealed any new insights into the breeding and wintering bird communities (including GWFG and golden eagle) within and around the Site.
NatureScot consultation November 2024	Whilst the 2023 update surveys largely focussed on breeding birds, we note that they did not include surveys for wintering birds. The wind farm is located close to Loch Arnicle, a well-used roost site by GWFG (the designated feature of the Kintyre Goose Roosts SPA) and we consider that all GWFG in Kintyre are connected to the SPA. The existing data for over-wintering surveys is now out of date and we are aware that GWFG usage of lochs (both SPA and non-SPA) for nocturnal feeding / roosting varies within and between winters which is why we advocate for two years of valid survey effort to inform an EIA, particularly where the wind farm could affect an SPA. Allt Domhain is also immediately north of and on the general migration route to Lussa Loch and Tangy Loch, which are the main roost lochs for the GWFG population found in the Laggan / Machrihanish area. This is evidenced by flight activity in the earlier baseline surveys in 2018/2019 indicating large numbers (up to 1000) of GWFG in October which coincides with their arrival to Kintyre for overwintering. In addition, with the adjacent forestry felling and operation of Blary Hill wind	As far back as February 2015 NatureScot queried CRM for GWFG at Blary Hill with data then showing clear east-west movements to the south of the Proposed Development, with birds utilising the roost at Loch Arnicle, moving to the western coastal areas. This was based on data collated from 2010-2011. In February 2015 RES submitted supplementary goose information for the area, including wireline diagrams as 'goose eye-view points and revised modelling which showed very low annual collision predictions. As such, we would expect NatureScot to have developed a sound understanding of goose movements in the area over the past decade and not to simply continually seek new datasets. Where surveys have been undertaken and no, or low, goose activity has been recorded, this is likely due to geese not being in the area rather than some other reason such as error. Again, data from Beinn an Tuirc and Blary Hill wind farms support his hypothesis, as well as the understanding that geese are typically creatures of habit and utilise the same areas and have traditional flight routes. As raised previously with NatureScot there is now a growing scientific picture of bird use developing in the area, around two

Consultee	Key Comments	Response/Action Taken
	farm, one of the main potential changes to the baseline conditions could be changes in usage of the area by GWFG. We are also aware of a potential partial barrier to north – south movement of birds (inc. for GWFG) forming across the spine of Kintyre as a result of Allt Domhain in combination with Auchadaduie, Blary Hill and the Beinn an Tuirc wind farms which further underpins our request for two years of baseline survey work with the current baseline conditions.	operating wind farms and the Site, not from a single year or two, but over multiple years, going back to 20 years in the case of Beinn an Tuirc. While we understand NatureScot (2025) guidance seeks two years data, we are in a position with multiple years data, much of which has already been analysed and agreed. In addition, we have our own site data as raised and listed in previous correspondence. As such we consider that the existing datasets are sufficiently extensive/comprehensive to allow a robust OIA to be completed.
	Whilst the 2023 update survey results indicate that there is relatively little change for key ornithological receptors, it is unknown whether the activity would have been higher without the construction of Blary Hill or not. The golden eagle territory that Argyll RSG refer to as KM13 is the new range we were referring to in our earlier correspondence – we are aware that it has only had a breeding adult pair present since 2020, but it was set up by immature birds in 2018. Interestingly, the level of golden eagle activity in the non-breeding season increased notably between the 2018-19 & 2019-20 winters (which appears to coincide with the settlement of KM13 territory). As a result, we consider that the 2023 survey update should have also covered the non-breeding season for golden eagle as this area may have become more important in the non-breeding season.	Similar comments are made regarding wintering GWFG. Additional golden eagle data collected over the years has been collated for Beinn an Tuirc. This has kindly been made available to the Applicant by Scottish Power Renewables. None of the data provided by SPR and Ecology Consulting/RES reveal issues over the Allt Domhain site this is detailed in the impact assessment for each species as detailed below. Impacts are assessed for Golden Eagle in Sections 8.101-8.110 and impacts are assessed for GWFG in Sections 8.140-8.148. Additional non-breeding season flight activity surveys were also conducted from October 2024 to March 2025.
NatureScot consultation December 2024	There is currently insufficient valid data to inform the appraisal of the impacts of the proposal on ornithological receptors, particularly for GWFG which RPS cite as one of the highest priority species in Kintyre. Data from the following is required: at least one valid non-breeding (winter) season of bird survey effort is required. This needs to cover the key periods for migratory wildfowl and should encompass the following surveys: 1. Winter vantage point surveys for all bird species (minimum of 36 hours), ensuring that the surveys also cover the sensitive dawn and dusk periods when GWFG are commuting to and from their roosting areas. 2. Goose roost counts at Loch Arnicle which will consist of two	1. Additional winter VP surveys (including dawn/dusk periods) were completed between October 2024 and March 2025. Based on plentiful datasets which have been provided by Ecology Consulting/RES, GWFG monitoring reports, it is not considered necessary to install an additional VP to cover this area which is already covered in detail for four consecutive years by Ecology Consulting's flight activity viewshed. 2. Comprehensive Greenland White Fronted Goose (GWFG) monitoring data collected by Ecology Consulting for the neighbouring Blary Hill Wind Farm was shared with RPS by RES. This data clearly indicates that the GWFG core flight path is directly west/northwest and southwest between Glenbarr and Loch Arnicle. These monitoring reports evidence that there is almost total

Consultee	Key Comments	Response/Action Taken
	watches a month over the non-breeding season. These should be coordinated with Ecology Consulting Ltd (who are undertaking post construction monitoring roost watches for Blary Hill Wind Farm) to ensure there is no overlap which could cause disturbance to roosting birds and skew the survey results. 3. Walkover surveys to survey for presence/use of the Site by black grouse or any other species.	avoidance of the Allt Domhain Site which is further east from the already operational Blary Hill Windfarm. In addition, Loch Arnicle is not a designated SPA Loch, however it is noted that it may be considered functionally linked. Loch Arnicle has been identified as an infrequently used night roost by Ecology Consulting Ltd. 3. Lekking black grouse, breeding raptor, and MBBS were conducted in 2023 and results from these showed little variation to surveys conducted in 2018 and 2019. Additional black grouse surveys were also conducted in April and May 2025, these surveys did not detect any new lek sites which had not been previously identified.

Assessment Methodology

- 8.19 The assessment determines the potential effects of the Site and considers the likelihood of their occurrence. Effect is defined as change in the assemblage of bird species present as a result of the impacts accrued by the Site. Change can occur either during or beyond the life of the Site. Where the response of a population has varying degrees of likelihood e.g. as a result of habituation, the probability of these differing outcomes is considered. Note effects can be adverse, neutral, or beneficial.

In assessing whether an effect is significant or not, three factors are considered:

- the Nature Conservation Importance of the species involved;
- the magnitude of the likely effect;

- 8.20 The significance of potential effects is then determined by integrating the assessments of these factors in a reasoned way. The magnitude of likely effects involves consideration of their spatial and temporal magnitudes. In making judgements on significance by this integration, consideration is given to the national and regional trends of the potentially affected species, and how the integrated effects may impinge on the conservation status of the species involved at these geographical levels. Further details of the process underlying the assessment and the determination of significance are presented in the following sections.

Nature Conservation Status and Importance

- 8.21 The Nature Conservation Importance of each species potentially affected by the Site was defined.

Table 8.2. Nature Conservation Importance

Importance	Definition
High	Species listed in Annex 1 of the EU Birds Directive. Breeding species listed on Schedule 1 of the WCA.
	Breeding species listed on Schedule 1 of the WCA.
Moderate	Species on the BoCC 5 Red and Amber list (Stanbury <i>et al.</i> , 2021) and species on the Scottish Biodiversity List (SBL).
	Regularly occurring migratory species, which are either rare or vulnerable, or warrant special consideration on account of the proximity of migration routes, or breeding, moulting, wintering or staging areas in relation to the Site.
	Species present in regionally important numbers (>1 % regional population).
Low	Green listed species: Species which do not show moderate or severe declines and are of low conservation concern.

8.22 Following the classification of each species' Nature Conservation Importance and consideration of the magnitude of each effect, professional judgement is used to make a reasoned assessment of the likely effect on the conservation status of each potentially affected species.

8.23 Where the available data allowed, the conservation status of each potentially affected population was considered within the NHZ. For these purposes, conservation status was taken to mean the sum of the influences acting on a population which may affect its long-term distribution and abundance. Conservation status is considered to be favourable where:

- A species appears to be 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;
- There is (and will probably continue to be) sufficient habitat to maintain the species' population on a long-term basis.

8.24 Where these criteria above did not apply to a species then conservation status is categorised as unfavourable. In addition, where a species showed low levels of site use the potential disturbance/displacement impacts were considered negligible and consequently the species was scoped out of the assessment.

Magnitude of Impact

8.25 In determining the magnitude of impact, the behavioural sensitivity and ability to recover from temporary adverse conditions is considered in respect of each potentially affected population. Behavioural sensitivity is determined according to each species' ecological function and behaviour. The judgement takes account of information available on the responses of birds to various stimuli (e.g. predators, noise and disturbance by humans). It should be noted that behavioural sensitivity can differ even between similar species

(Schueck *et al.*, 2001) and that, within a particular species, some populations and individuals may be more sensitive than others, and sensitivity may change over time. Therefore, the behavioural responses of birds are likely to vary with both the nature and context of the stimulus and the experience and 'personality' of the bird. Sensitivity also depends on the activity of the bird. For example, a species is likely to be less tolerant of disturbance whilst breeding than at other times, and tolerance is likely to increase as breeding progresses (Holthuijzen, 1989).

- 8.26 A population's behavioural sensitivity may also be considered. Behavioural sensitivity may be judged as being high, moderate or low according to the species' ecological function and behaviour. Behavioural sensitivity can differ even between similar species and, for a particular species, some populations and individuals may be more sensitive than others, and sensitivity may change over time, e.g. species are often more sensitive during the breeding season.

Table 8.3. Determining Factors for Behavioural Sensitivity

Sensitivity	Definition
High	Species or populations occupying habitats remote from human activities, or that exhibit strong and long-lasting reactions to disturbance events.
Moderate	Species or populations that appear to be warily tolerant of human activities, or exhibit short-term reactions to disturbance events.
Low	Species or populations occupying areas subject to frequent human activity and exhibiting mild and brief reaction (including flushing behaviour) to disturbance events.

- 8.27 The magnitude of an impact was determined by consideration of the spatial and temporal nature of each potential effect. There are five levels of spatial magnitude and four levels of temporal magnitude. In the case of species that are not features of designated sites, spatial magnitude was assessed in respect of populations within the appropriate ecological unit; in this case the appropriate unit is taken to be the Argyll and the Islands Natural Heritage Zone (NHZ 14), as defined by NatureScot (NatureScot, 2000).
- 8.28 The magnitude of an effect can be influenced by when it occurs. For example, operations undertaken in daylight hours may have little temporal overlap with the occupancy of birds' night-time roosts; and seasonality in a bird population's occupancy of a site may mean that impacts are unlikely during certain periods of the year.

Table 8.4. Levels of Spatial Impact Magnitude

Magnitude	Definition
Very High	Total/near total loss of a bird population due to mortality or displacement. Total/near total loss of productivity in a bird population due to disturbance. Guide: > 80% of regional population affected
High	Major reduction in the status or productivity of a bird population due to mortality, displacement or disturbance. Guide: 21-80% or regional population affected.

Magnitude	Definition
Moderate	Partial reduction in the status or productivity of a bird population due to mortality, displacement or disturbance. Guide: 6-20% of regional population affected
Low	Small but discernible reduction in the status or productivity of a bird population due to mortality, displacement or disturbance. Guide: 1-5% of the regional population affected.
Negligible	Very slight reduction in the status or productivity of a bird population due to mortality, displacement or disturbance. Reduction barely discernible, approximating to the 'no change' situation. Guide: < 1% of regional population affected.

Table 8.5. Levels of Temporal Impact Magnitude

Magnitude	Definition
Permanent	Impacts continuing indefinitely beyond the span of one human generation (taken as approximately 25 years), except where there is likely to be substantial improvement after this period (e.g. the replacement of mature trees by young trees which need > 25 years to reach maturity, or restoration of ground after removal of a development). Such exceptions can be termed very long-term effects.
Long-term	Approximately 15-25 years or longer (refer to above)
Medium-term	Approximately 5-15 years
Short-term	Up to approximately 5 years

- 8.29 Importantly, in determining sensitivity and its contribution to an effect, where such information exists from monitoring sites, data on the responses of individual birds and bird populations to wind farms and similar developments are taken into account, along with knowledge of how rapidly the population or performance of a species is likely to recover following loss or disturbance (e.g. birds being recruited from other populations elsewhere).

Determining Significance of Potential Effects

- 8.30 In accordance with the EIA Regulations, each likely effect is evaluated and classified as either significant or not significant. Detectable changes in the conservation status of regional populations of Nature Conservation Importance are automatically considered to be significant effects for the purposes of the EIA Regulations (i.e. no distinction is made between effects of "major" or "moderate" significance). Non-significant effects include all those which are likely to result in barely detectable (minor) or non-detectable (negligible) changes in conservation status of regional (and therefore national) populations. If a potential effect is determined to be significant, measures to avoid, reduce or remedy the effect are suggested wherever possible.

Table 8.6. Significance of Effects on Birds

Significance of Effect	Definition
Major	Detectable changes in regional populations of Nature Conservation Importance that would have a severe impact on conservation status.
Moderate	Detectable changes in regional populations of Nature Conservation Importance that would likely have an impact on their conservation status.
Minor	Small or barely discernible changes that would be unlikely to have an impact on the conservation status of regional populations of Nature Conservation Importance
Negligible	No or non-detectable changes in the conservation status of regional populations of Nature Conservation Importance.

Methodology

Survey Areas

8.31 The Survey Area was defined with reference to the Site boundary of the Site and encompasses a series of buffers of up to 6 km radius; with buffer size dependent on the sensitivity of key species to potential effects associated with wind farm development (see Volume 2 Figure 8.4). The following geographic definitions and various survey areas, which describe the proposed development and make up the Study Area, are defined as follows:

- 'Site' refers to the area enclosed by the Site red-line boundary;
- "Proposed Development" Refers to the wind farm infrastructure and the whole process involved with the lifetime of Allt Domhain Wind Farm including construction, operation and decommissioning.
- "Main Windfarm Site" The core area within the Site containing the primary components of the proposed development. This includes the turbines and associated turbine infrastructure, as well as the substation, compound and on Site tracks.
- "Access Track Site" forms part of the application boundary and comprises two route options under consideration to provide access to the Main Wind Farm Site.
- 'VP survey area' (see Volume 2 Figure 8.5) refers to a polygon around the outermost turbines plus an additional 500m buffer around the polygon;
- 'Breeding raptor survey area' refers to the Site plus an additional 2 km wide buffer around it and presence of contiguous suitable habitat outside of the core survey area;
- 'Breeding eagle survey area' refers to the Site plus an additional 6 km wide buffer around it depending on contiguous suitable habitat outside of the core survey area;
- 'Breeding diver survey area' refers to the Site plus an additional 1 km wide buffer around it;
- 'MBBS area', refers to the Site plus an additional 500 m wide buffer around it; and
- 'Black grouse survey area' refers to the Site plus an additional 1.5 km wide buffer around it.

- **Ornithological surveys (black grouse, moorland breeding bird and breeding raptor) are also ongoing on the proposed Access Track Site which will inform the basis of a further environmental information (FIE) ornithology report. This FIE report will be issued after the breeding bird season in September 2025.**

Survey Restrictions

- 8.32 As detailed in Section 3.4.3 of Technical Appendix 8.1, access restrictions to areas of land which were not under the same ownership as the Site itself meant that it was not possible to enter certain parts of the survey buffer (Volume 2, Figure 8.4). Consequently, surveys of these areas were undertaken by walking the Site boundary and recording birds observed in the adjacent buffer.

Desk-based Study

- 8.33 A desk-based study was undertaken to collate existing bird records/data. Distribution and abundance data were collected from published sources (Forrester *et al.*, 2007 and Balmer *et al.* 2013) and nature conservation organisations in relation to species with moderate or high nature conservation value. Targeted eagle surveys were supplemented with eagle monitoring data from the Argyll Raptor Study Group this ensured it was highly unlikely any potential eagle territories were missed. Full details of the desk-based study methods are provided in Technical Appendix 8.1 Section 2.

Field Surveys

- 8.34 Baseline ornithology field surveys were carried out in the years 2018-2020 and 2023-2025 as outlined in Table 8.7. Despite 2018-2020 data now being older than five years, the survey results in years 2023-2025 showed no significant difference in the breeding bird assemblage across the Site when compared to 2018-2020. To confirm that there were no significant changes in flight paths, levels of flight activity, ranges, or nesting sites of sensitive ornithological features particularly GWFG and golden eagle, additional flight activity surveys were also conducted throughout the 2024 non-breeding season. These surveys also indicated no significant changes in flight paths, ranges or nesting sites. Field survey design complied with the NatureScot guidance that was current at the time (NatureScot, 2017) and set out to document the distribution, abundance and flight activity of target bird species. This information was used to inform the EIA.

Table 8.7 Summary of completed ornithology surveys

Survey type	Survey periods
Flight activity surveys	• Apr 2018 to Mar 2020 (2 full years) • Mar to Aug 2023 • Oct to Mar 2024 • Apr to Aug 2025
Lekking black grouse surveys	• Apr to May of 2018, 2019, 2023, 2025
Breeding raptor surveys (including targeted surveys for golden eagle)	• Apr to Jul 2018 • Feb to Aug 2019

Survey type	Survey periods
	• Feb to Jul 2023
Breeding red-throated diver surveys	• Jun & Jul 2018 • Jun 2019 • Aug 2023
Moorland breeding bird surveys (MBBS)	• Apr to Jul of 2018, 2019 & 2023

- 8.35 The ornithological survey programme was developed based on the particular ornithological sensitives which are anticipated to occur at the Site. A detailed methodology for all surveys is provided in Technical Appendix 8.1 Section 3 and is briefly summarised below.

Flight Activity (Vantage Point) Survey

- 8.36 Two VPs were identified to adequately cover the VP Survey Area. Combined, these VPs overlook the full VP Survey Area and the entirety of the Site at rotor height in accordance with NatureScot (2017) guidelines.
- 8.37 NatureScot (2017) guidance requires that a minimum of 36 hours of survey effort is carried out at each VP in each relevant survey season (i.e. breeding and non-breeding). The flight activity survey programme was devised to cover the generic breeding season (April to August inclusive), as well as that of eagle species (February to August inclusive) which was anticipated to occur in the vicinity of the Site. The survey programme was also designed to capture sufficient effort during the non-breeding season for GWFG (October to April inclusive) due to the potential for this species to occur over and around the Site during the winter months.
- 8.38 A total of 492 hours of flight activity survey effort was undertaken across the Site with at least 36 hours of effort completed per VP during each of the following seasons:
- generic breeding season (April – August);
 - generic non-breeding season (September – March);
 - eagle species breeding season (February – August);
 - GWFG non-breeding season (October – April).

Breeding Raptor Survey

- 8.39 Breeding raptor surveys covering the breeding raptor survey area and breeding eagle survey area were completed between April-July in 2018, 2019 and 2023, with additional targeted eagle surveys in February-March and August 2019 and February-March 2020 and March 2023.
- 8.40 Survey protocols broadly followed the standard methodologies for assessing raptor populations as set out by Hardey *et al.* (2013). The surveys involved four rounds of visits undertaken monthly between April and July to determine presence, territory occupation and breeding success. This period encompasses the time of the year when levels of

activity by most breeding raptor species are highest and their presence most likely to be detected. Targeted eagle surveys should ideally be conducted in February and March to detect territory occupation and early season displaying. This was not possible in 2018 and February 2023 due to the timing of survey commissioning. However, surveys were undertaken from February to March in 2019 and 2020 to capture early season eagle breeding and territorial behaviour the following season, as detailed below.

- 8.41 Due to late commissioning, breeding raptor surveys did not commence until April 2018 limiting the coverage of the 2018 eagle breeding season by two months. Therefore, the effort for the 2018 season was supplemented with the February and March 2019 survey effort to capture the required minimum amount of effort for this species breeding season. Eagle surveys also commenced a month late in 2023 with a March start.

Moorland Breeding Bird Survey

- 8.42 The MBBS were originally designed to cover all areas of open moorland within the MBBS Area. Surveys followed a modified version of the Brown and Shepherd (1993) methodology, summarised in Gilbert *et al.* (1998). This involved four survey visits conducted between April and July 2018, 2019 and 2023 with surveyors following transect routes covering all accessible parts of the MBBS area to within 100 m.

Black Grouse Survey

- 8.43 Targeted surveys were undertaken to determine the locations of black grouse lek sites. The black grouse survey area is shown in Volume 2, Figure 8.4.
- 8.44 These surveys were originally designed to cover all areas of suitable lekking habitat (e.g. areas of short grassland or moorland particularly near forest edges and along forest rides) within the black grouse survey area. Three survey visits including assessment of habitat suitability were conducted between April and mid-May 2018-2019, 2023 and April and mid-May 2025.

Baseline Conditions

- 8.45 This section lists the designated sites of potential relevance to the assessment, briefly outlines habitat conditions as they may affect bird populations, and summarises baseline bird populations and bird flight activity in the vicinity of the Site.
- 8.46 Climate change projections indicate likely drier and warmer summers and warmer winters with increased winter rainfall². These changes may affect habitats and prey abundance and availability. Bird populations dependent upon invertebrates may be most affected. Overall, there may be long-term changes to abundance, distribution and sensitivity of some key species. However, any such long-term changes are unlikely to affect the validity of baseline surveys and the assessment reported in this chapter.

Designated Sites

² [climate-projections-scotland-summary-dec21.pdf](#)

- 8.47 Three internationally designated sites of ornithological interest are present within 20 km of the Site: the Kintyre Goose Roost SPA and Ramsar site, the Sound of Gigha SPA and Arran Moors SPA. Further details of all three sites are presented below.
- 8.48 There are no nationally designated sites of ornithological interest within 2 km of the Site.

Kintyre Goose Roosts SPA and Ramsar Site

- 8.49 The Kintyre Goose Roosts SPA and Ramsar site covers 409.2 hectares (ha) and 309.25 ha respectively. They comprise of a series of five hill lochs, Loch Garasdale, Loch an Fhraoich, Loch Lussa, Tangy Loch & Black Loch; and an area of grassland and heath at Rhunahaorine Point on the Kintyre peninsula. The boundaries of Rhunahaorine Point SSSI, Tangy Loch SSSI and Kintyre Goose Lochs SSSI are all within the SPA. The Kintyre Goose Roosts Ramsar site is also completely within the boundary of Kintyre Goose Roosts SPA. (Volume 2, Figure 8.3).
- 8.50 GWFG roost on the various lochs included in the SPA and on the grassland and heath at Rhunahaorine Point. These roosts all held internationally or nationally important numbers during the mid-1990s (when the site was designated). The geese use several other roosts on Kintyre but their use is more sporadic and the geese are not present in nationally important numbers. There are two main populations of GWFG, one which feeds on improved agricultural land around Rhunahaorine Point with significant roosts on Rhunahaorine Point, Loch an Fhraoich and Loch Garasdale; and another which feeds on improved agricultural land in the Laggan area with significant roosts on Loch Lussa, Tangy Loch and Black Loch (SNH 1998³).
- 8.51 The Kintyre Goose Roost SPA and Ramsar site, which is made up of several lochs, and is designated for its non-breeding population of GWFG, is located approximately 4.20 km from the nearest part of the Site boundary.

The Sound of Gigha SPA

- 8.52 The Sound of Gigha SPA, designated for coastal/marine non-breeding waterbirds and located approximately 6 km to the west is not considered to have any connectivity with the Site and therefore is not considered further. This is because the Site does not have suitable breeding or foraging habitat to support the wintering, marine SPA qualifying bird species.

The Arran Moors SPA

- 8.53 The Arran Moors SPA located 14.86 km east of the Site is designated for breeding hen harrier. NatureScot Guidance (2016) states hen harrier have a core foraging distance of 2 km with a maximum range of 10 km during the breeding season. Consequently, hen harrier is not considered to have any connectivity with the Site and therefore is not considered further.

Sites of Special Scientific Interest

³ <https://www.nature.scot/sites/default/files/special-protection-area/8518/spa-citation.pdf>

- 8.54 These are designated under national legislation (rather than European) to protect different biological and geological features of interest. Each site and important ornithological feature are detailed in Table 8 of the Ornithological Technical Appendix 8.1.

Baseline Bird Populations Within the Vicinity of the Site

Desk Study Records

- 8.55 The RSPB provided records of black grouse and the ARSG provided records of three protected raptor species: golden eagle, hen harrier and barn owl. Details of these records which are present within the black grouse, breeding raptor and eagle survey areas and are provided in Confidential Annex 8.3.

Survey results

Golden Plover

- 8.56 During vantage point surveys (only) a total of nine golden plover flights comprising a total of 297 individuals were recorded across all survey years. Golden plover was present in years 2 and 3 of baseline surveys and was recorded in flight in and around the proposed development area. The majority of flights were observed in the southwest of the vantage point survey area. All flights were recorded during the non-breeding season and no territories were identified within the MBBS survey area during any year.
- 8.57 The flights passed within the VP Survey Area for a total duration of 50,720 seconds. Of this, 1599.20 seconds of flight time was below 20 m in height, i.e. not at risk of collision. The remaining 49,120.8 seconds was at potential collision height (PCH)⁴. CRM was therefore undertaken for this species.

Golden Eagle

- 8.58 Across all the survey years, a total of 22 golden eagle flights comprising 24 individuals were recorded during the VP surveys. The flights, which consisted of adult and sub-adult birds, occurred throughout the breeding & non-breeding seasons and were predominantly distributed west of Cnoc Donn. All flights were either partially or entirely at PCH.
- 8.59 The flights passed within the VP Survey Area for a total duration of 6,956.5 seconds. Of this time, 6,346.8 seconds was spent at 20-250 m in height (i.e. PCH). CRM was therefore undertaken for this species.
- 8.60 Details of known golden eagle nesting sites within the eagle survey area were provided by the ARSG and are shown in Confidential Annex 8.3.

⁴ Potential Collision Height = 20-250m

White-tailed Eagle

- 8.61 During vantage point surveys two flights of white-tailed eagle consisting of two individuals were recorded during the 2023 non-breeding season.
- 8.62 The flights passed within the VP Survey Area for a total duration of 300.1 seconds all of which was spent at 20-250 m in height (i.e. PCH). CRM was therefore undertaken for this species.
- 8.63 There are no known white-tailed eagle nesting sites within the breeding raptor or eagle survey areas.

Hen Harrier

- 8.64 During vantage point surveys a total of 97 hen harrier flights comprising 99 individuals were recorded. Hen harrier was present throughout all years of baseline surveys. The majority of flights were observed below PCH and occurred largely over the Site and just outside the Site red line boundary. Flight activity was at its highest levels during the breeding season across all survey years.
- 8.65 The flights passed within the VP Survey Area for a total duration of 13,620.9 seconds. Of this, 10,952.9 seconds of flight time was below 20 m in height, i.e. not at risk of collision. The remaining 2,668 seconds was at PCH. CRM was therefore undertaken for this species.
- 8.66 Details of known hen harrier nesting sites, present within the breeding raptor survey area (provided by the ARSG) are shown in Confidential Annex 8.3.

Black Grouse

- 8.67 During vantage point surveys a total of 14 black grouse flights were recorded in years 1-4⁵ of the baseline surveys, flying over and around the Site. The majority of flights were observed in the southwest of the black grouse survey area. Black grouse flights were recorded during the breeding and non-breeding season.
- 8.68 The flights passed within the VP Survey Area for a total duration of 520.5 seconds. Of this, 268.1 seconds of flight time was below 20 m in height, i.e. not at risk of collision. The remaining 252.4 seconds was at PCH. CRM was therefore undertaken for this species.
- 8.69 Details of known black grouse lek sites identified during black grouse surveys and present within the black grouse survey area (and also provided by the RSPB) are shown in Confidential Annex 8.3.

Osprey

⁵ Year 1 2018 breeding season, Year 1 2018/2019 non-breeding season, Year 2 2019 breeding season, Year 2 2019/2020 non-breeding season, Year 3 non-breeding season 2023, Year 3 2023 breeding season and Year 4 non-breeding season.

- 8.70 During vantage point surveys a total of eight osprey flights comprising eight individuals were recorded in years 1 and 2 of the baseline surveys, flying over and around the Site. The majority of flights were observed in the southwest of the breeding raptor survey area.
- 8.71 The flights passed within the VP Survey Area for a total duration of 13,620.9 seconds. Of this, 37.5 seconds of flight time was below 20 m in height, i.e. not at risk of collision. The remaining 726.5 seconds was at PCH. CRM was therefore undertaken for this species.

Curlew

- 8.72 During vantage point surveys a total of nine curlew flights were recorded in years 1 and 2 of the baseline surveys flying over and around the Site. The majority of flights were observed in the northwest of the vantage point survey area. Three territories were identified during MBBS Year 1 surveys (2018) and one during MBBS Year 2 (2019), breeding territory locations are shown in Volume 2 Figure 8.18-8.20 and are described in Section 5.18-5.20 of the Technical Appendix 8.1 Report.
- 8.73 The flights passed within the VP Survey Area for a total duration of 737.2 seconds. Of this, 586.7 seconds of flight time was below 20 m in height, i.e. not at risk of collision. The remaining 150.5 seconds was at PCH. CRM was therefore undertaken for this species.

Greylag Goose

- 8.74 There was one flight by greylag geese comprising a total of six individuals during Year 1 non-breeding season. This flight was located just beyond the southwestern boundary of the Site and within the VP viewshed. Given the limited flight records by this species within the VP Survey Area, a detailed assessment of potential effects on this species arising from the Site is not required under the EIA Regulations.

Red Throated Diver

- 8.75 Two waterbodies suitable for divers were identified within the breeding diver survey area. These were Loch Arnicle, located to the southwest of the Site, and a small un-named lochan amongst clear-felled forestry to the south. However, access restrictions to the latter (Volume 2, Figure 8.4) meant that this lochan was only surveyable from a vantage point on Cnoc Eoghainn.
- 8.76 Despite observations during the flight activity surveys of a single red-throated diver flight at Loch Arnicle in 2018 (Volume 2, Figure 8.6), and a pair landing on Loch Arnicle in 2023 (Volume 2, Figure 8.11), there was no evidence to suggest breeding activity at either of the two suitable waterbodies within the breeding diver survey area in any survey year. No further diver surveys were undertaken based on experienced surveyor's professional judgement. This is further backed up by evidence from bird monitoring report data available from Blary Hill Windfarm (Ecology Consulting 2024), which also concluded that there was no evidence of breeding activity from 2022-2024.
- 8.77 Given the lack of flight records by this species within the VP Survey Area during all baseline breeding seasons, a detailed assessment of potential effects on this species arising from the Site is not required under the EIA Regulations. Hence, red throated diver

despite their high Nature Conservation Importance are not considered further in this chapter.

Whooper Swan

- 8.78 Only one flight of whooper swan consisting of nine individuals was recorded in the year 2 non-breeding season. Given the limited flight records by this species within the VP Survey Area during all baseline non-breeding seasons, a detailed assessment of potential effects on this species arising from the Site is not required under the EIA Regulations. Hence, whooper swans despite their high Nature Conservation Importance are not considered further in this chapter.

Merlin

- 8.79 Only one flight of merlin consisting of one individual was recorded in the year 2 non-breeding season. Given the limited flight records by this species within the VP Survey Area during baseline surveys, a detailed assessment of potential effects on this species arising from the Site is not required under the EIA Regulations. Hence, merlin despite their high Nature Conservation Importance are not considered further in this chapter.

Barn Owl

- 8.80 During breeding raptor surveys there were no records of barn owl recorded within the breeding raptor survey area. However, there were three records of barn owl returned from the desk-based study. Despite this, habitats within the Core Site are largely unsuitable for foraging by barn owl and, therefore, unlikely to attract birds; barn owls tend to select favourable foraging habitats within a few hundred metres of their nesting site (Bunn *et al.*, 1982). Hence, since barn owls have no potential to suffer effects as a result of the Site they are not considered further in this chapter.
- 8.81 Details of known barn owl nest sites (provided by the ARSG) are shown in Confidential Figure 8.4.

Snipe

- 8.82 One snipe flight was recorded in the breeding season of the year 2 vantage point surveys, this comprised of one individual. In addition, two breeding territories were recorded during the 2018 MBBS, breeding territory locations are shown in Volume 2, Figure 8.18. Given the low number of flight records and breeding territories by this species within the VP and MBBS Survey Area, a detailed assessment of potential effects on this species arising from the Site is not required under the EIA Regulations.

Common Sandpiper

- 8.83 During vantage point surveys no common sandpiper flights were recorded. However, MBBSs in 2018 revealed the presence of one territory in the southwest of the MBBS survey area. A second territory was recorded in the south west of the MBBS area in 2019, breeding territory locations are shown in Volume 2, Figure 8.19. Given the low number of flight records and breeding territories by this species within the VP and MBBS Survey Area,

a detailed assessment of potential effects on this species arising from the Site is not required under the EIA Regulations.

Incidental flights: Greenland White-fronted Goose

- 8.84 Seven incidental flights of GWFG were recorded in the year 1 non-breeding season. The flights dispersed from Loch Arnicle southwest of the Site and all individuals flew in the opposite direction to the Site. In the Year 2 non-breeding season a further three flights of GWFG were recorded. Flight paths indicated these flights came from the west, and the birds landed on Loch Arnicle. No flights were recorded heading towards, or over the Site.
- 8.85 Due to GWFG being a qualifying ornithological feature of the Kintyre Goose Roosts SPA a detailed assessment of potential effects on this species arising from the Site is still required under the EIA Regulations. This is despite the limited flight records by this species within the VP Survey Area.

Other Species

- 8.86 It is generally accepted that passerine species are not significantly impacted by wind farm developments (NatureScot, 2017) and it is considered unlikely that the Site would have a significant impact on local populations of passerine species. Hence, effects on all passerine species are not considered further in this chapter. Common gull (*Larus canus*), great black backed gull (*Larus marinus*), kestrel (*Falco tinnunculus*) and mallard (*Anas platyrhynchos*) were only recorded once during the 2023 MBBS, therefore a detailed assessment was not required. Any other species were not of Nature Conservation Importance and effects on regional populations are considered implausible; hence, none are considered further in this chapter.

Identification and Evaluation of Potential Effects

Effects Scoped Out

- 8.87 On the basis of the desk-based study and field surveys undertaken, professional judgement and taking account of policy guidance, the following topic areas have been scoped out of the assessment:
- Effects on the following bird populations: greylag goose, red throated diver, whooper swan, merlin, barn owl, common sandpiper, snipe, gull sp., kestrel, mallard and all passerine species of moderate or high Nature Conservation Importance. Baseline field studies recorded infrequent use of the area near the Site by these species of high and moderate Nature Conservation Importance. Although these species, or species groups, were present, they were recorded infrequently, and in relatively small numbers (Volume 2, Figures 8.6-8.13), indicating that their use of habitats (e.g. for breeding, roosting or foraging) and airspace in the vicinity of the Site was limited, and the Site will have negligible effects on relevant populations of these species. Consequently, given regional abundance and/or behavioural sensitivity there is considered to be no potential for any adverse effect on regional populations as a result of construction, operational or decommissioning activities (see Baseline Conditions); and

- Effects on all bird species classified as of low Nature Conservation Importance.

Potentially Affected Species

- 8.88 Potential effects are evaluated in respect of species of high or moderate Nature Conservation Importance whose regional populations could be potentially affected by the Site (Table 8.8). Emphasis is given to species identified as sensitive receptors. In considering the Nature Conservation Importance of potentially affected species, consideration has been given to the criteria in (Table 8.2). The types of potential effects resulting from the Site on birds are detailed below.

Table 8.8. Nature Conservation Importance of Potentially Affected Species

Importance	Species
High	Golden eagle, white-tailed eagle, hen harrier, black grouse, osprey, greylag goose, red-throated diver, merlin, GWFG.
Moderate	Golden plover, curlew

Potential Effects

- 8.89 The assessment has been undertaken under the assumption that embedded mitigation in the form of a Bird Protection Plan (BPP), devised in consultation with NatureScot, would be in place prior to the onset of construction activities. The BPP would describe survey methods for the identification of sites used by protected breeding and roosting birds and will detail protocols for the prevention, or minimisation, of disturbance to birds as a result of any activities associated with the Site. The BPP would be overseen by the Ecological Clerk of Works (ECoW). The BPP would include surveys to locate the nests or other key sites (e.g. roosts) of birds listed in Schedules 1 and 1A of the WCA 1981, in advance of construction works progressing within the Site. In the event that an active nest or roost of a Schedule 1 or Schedule 1A species is discovered within distances given by NatureScot (2022) (or within a 500 m radius of the nest for Schedule 1 species not listed), a disturbance risk assessment will be prepared under the BPP and any measures considered necessary to safeguard the breeding attempt or roost (e.g., exclusion zones or restrictions on timing of works), would be submitted to NatureScot for agreement before recommencing work. Similarly, although the species is not listed on Schedule 1, additional surveys to locate black grouse lek sites would be undertaken and appropriate measures for safeguarding relevant lek sites would be agreed with NatureScot and included within the BPP.

Potential Disturbance and displacement during Construction and Decommissioning

- 8.90 During the construction stage of the Proposed Development, the potential effects of associated noise and visual disturbance could lead to the temporary disturbance and displacement of breeding, roosting and foraging birds. The level of impact would depend on the timing of potentially disturbing activities, the extent of displacement (both spatially and temporally) and the availability of suitable habitats in the surrounding area for displaced birds to occupy. Disturbance of birds due to construction activities of this type has not been sufficiently quantified in the literature and the available information is often contradictory. However, it is likely that construction impacts would be greater on

species that are intolerant of noise and other sources of disturbance. Larger bird species, those higher up the food chain or those that feed in flocks in the open tend to be more vulnerable to disturbance than small birds living in structurally complex or closed habitats such as woodland (Hill *et al.* 1997).

- 8.91 The potential effects associated with construction activities are only likely to occur for as long as the construction phase continues and are thus generally short-term in nature. The exception to this would be if a negative effect on the breeding success of a feature were such that the local population becomes extinct and replacement through recruitment or recolonisation does not occur. For example, a study by Pearce-Higgins *et al.* (2012) found that snipe and curlew densities declined significantly on wind farms during construction and had not recovered by the first-year post-construction. Disturbance/displacement effects during construction could affect species potentially breeding within the relevant parts of the study area. Furthermore, it could also affect species using the site as a potential roosting during both the breeding and non-breeding season. Disturbance/displacement of roosting birds, especially during the more weather adverse non-breeding season can negatively impact body condition, through an increase in energy expenditure and a reduction in rest time. Construction disturbance can be readily mitigated by avoiding sensitive areas through the implementation of appropriately defined buffer zones and by timing construction activities to avoid periods where sensitive species are present (if and where possible), such as the breeding season. A range of good practice measures have therefore been proposed to mitigate for potential construction disturbance effects including working under an ECoW, and the use of appropriate buffers as necessary (see Table 8.10 in this report).
- 8.92 The predicted ornithological impacts of construction works have been assessed using a combination of professional ornithological judgement based on known bird behaviour patterns and assessment of bird numbers. The significance criteria defined in (Table 8.6) have been used as a guide.
- 8.93 Safe working distances are detailed in the impact assessment of each scoped in species.
- 8.94 Construction of the Site is programmed to last for approximately 18 months. Potential disturbance from construction activities will therefore affect at least two bird breeding seasons (March-August).

Habitat Loss and modification (Direct and Indirect Due to Displacement) During Operation

- 8.95 As set out in Chapter 7: Ecology, the construction of turbine bases, access tracks and other associated infrastructure will result in a direct loss of approximately 12.02 hectares of habitat. Most of the habitat lost will be acid grassland and bog. Full details are provided in Chapter 7: Ecology.

Potential Collision Risk during Operation

- 8.96 VP surveys allowed for the collection of flight path data for target species which may fly or forage over the Site. In terms of these species, levels of flight activity by golden plover, golden eagle, white-tailed eagle, hen harrier, black grouse, osprey and curlew recorded

within the airspace where turbines are proposed warranted CRM. Levels of flight activity for other species of medium or high value were considered insufficient to warrant detailed CRM. Full details of all CRM for golden plover, golden eagle, white-tailed eagle, hen harrier, black grouse, osprey and curlew are set out in Technical Appendix 8.2 using the accepted avoidance rates recommended by NatureScot (2018).

Impact Assessment

Golden Plover

Disturbance during Construction and Decommissioning

- 8.97 As part of the embedded mitigation (BPP) all construction works will be excluded within (following the most recent NatureScot guidance 2022) distances of at least 200 m from any golden plover nest sites. Potential impacts of construction or decommissioning disturbance are considered to be of very low to zero magnitude and negligible significance at the scale of the non-breeding Scottish golden plover population (precautionary lower estimate of 25,000 individuals⁶; no estimates were available for the non-breeding NHZ populations). No golden plover breeding territories were recorded across all baseline surveys.

Habitat Loss (Direct and Indirect Due to Displacement)

- 8.98 Golden plovers are sensitive to human disturbance and numbers are known to be lower in areas of high disturbance (Finney *et al.*, 2005; Pearce-Higgins *et al.*, 2007). Pearce-Higgins *et al.* (2009) recorded a reduced occurrence of golden plovers within 200 m of turbines across 12 upland wind farms. However, Fielding and Haworth (2010) and Douglas *et al.* (2011) suggest that under some circumstances, golden plovers may be more tolerant of wind farm infrastructure. At Farr Wind Farm, Fielding and Haworth (2010) showed that the median distance of 16 golden plover nests to the nearest turbine was 168.8m, with nine nests being less than 200m and three less than 100 m from the nearest turbine. At Beinn Tharsuinn Wind Farm, Douglas *et al.* (2011) found that the distribution of breeding golden plovers appeared to be unaffected by proximity to turbines or tracks, with no evidence for this lack of association changing through time.
- 8.99 There is a possibility that golden plover will generally avoid areas developed for turbines resulting in additional direct and indirect habitat loss due to displacement. Although direct and indirect habitat loss impacts are predicted to be of no more than minor significance and negligible magnitude for golden plover, the Applicant will undertake measures to mitigate any impacts from direct and indirect habitat loss. These will include the implementation of a wider area Habitat Management Plan, which has been drawn up in outline and will be developed further, in consultation with NatureScot and RSPB. It will be aimed at improving and extending breeding and feeding habitat off-site. Measures to improve breeding habitat on-site will also be taken but these will only be

⁶ Forrester, R.W., Andrews, I.J., McInerney, C.J., Murray, R.D., McGowan, R.Y., Zonfrillo, B., Betts, M.W., Jardine, D.C., and Grundy, D.S. (eds). (2007). The Birds of Scotland. The Scottish Ornithologists Club, Aberlady.

continued if it is demonstrated that any birds breeding within and adjacent to the site are not adversely affected by collision risk.

Potential Collision Risk during Operation

- 8.100 For golden plover, no collisions are predicted during the breeding season this is because no flights of golden plover were recorded in the breeding season. However, the non-breeding season CRM results indicate the highest collision risk impact: 1.949 birds per non-breeding season with 15 % downtime, and 1.027 birds per non breeding season with 55.2 % downtime. This would be a minor significant effect and negligible magnitude at a Regional level. However, the Collision Risk Modelling Technical Appendix 8.2 (Sections 5.1.2-5.1.5) highlights limitations of the CRM and a likely overestimation of golden plover mortality. Any potential residual effects can be monitored via the operational monitoring programme (Sections 8.161-8.167 and Table 8.10).
- 8.101 Moreover, golden plover breeding season collisions are predicted to be very low, and non-breeding season collisions, although high, can be considered against the large size of the Scottish non-breeding population. On review of the 15 % downtime scenario (which is more precautionary than the 55.2 % downtime scenario), golden plover annual predicted collision mortality comprises 0 collisions during the breeding season and 1.949 collisions during the non-breeding season. This represents a predicted collision risk impact of 0.008 % of the Scottish non-breeding population (precautionary lower estimate of 25,000 individuals (Forrester *et al.*, 2007); no estimates were available for the non-breeding NHZ 14 golden plover population). Therefore, the effect of collision risk on golden plover would be of low magnitude and minor significance which is not significant in EIA terms.

Golden Eagle

Disturbance during Construction and Decommissioning

- 8.102 All construction will be excluded within (following most recent NatureScot guidance 2022) distances of at least 750-1000 m from the nearest golden eagle nest site. Potential impacts of construction or decommissioning disturbance are considered to be of very low to zero magnitude and negligible significance at the scale of the NHZ this is because all known nest site are more than 2 km from the Site.

Habitat Loss (Direct and Indirect Due to Displacement)

- 8.103 Although there is historically little clear evidence for long-term displacement effects upon golden eagles as a result of operational wind farms (Fielding *et al.*, 2022). There is evidence from operational monitoring studies undertaken at Edinbane, Ben Aketil and Beinn an Tuirc Wind Farms that suggests decreased spatial use of habitats at the wind farm during initial years of operation, though noting that some activity through turbine clusters was recorded and there were potential confounding factors which prevent clear conclusions from being drawn. Displacement is further investigated in a recently published paper investigating the response of GPS tagged dispersing juvenile golden eagles to wind farms in Scotland (Fielding *et al.*, 2022). Their findings suggest that dispersing juvenile golden eagles avoid turbines (meso avoidance) but did not

demonstrate avoidance of wind farms per se (macro avoidance). Overall, evidence suggests golden eagle behaviour in proximity to wind farms has since reached the stage where collision risk is no longer deemed a significant risk. This conclusion has derived from evidence of golden eagle macro (and meso) avoidance of turbines across Scotland.

- 8.104 Evidence suggests there is a possibility that golden eagle will generally avoid areas developed for turbines resulting in additional habitat loss. Therefore, assuming that the areas between turbines are unlikely to be available to foraging golden eagles on the basis of avoidance of turbines, displacement and loss of habitat has been calculated using a 500 m radius buffer around each turbine. A 500 m buffer zone is based upon empirical data gathered at the operational Edinbane windfarm, located on the Isle of Skye, and has been accepted by NatureScot as good practice (Conservation 2012).
- 8.105 Furthermore, NatureScot recommend the use of the GET model to inform potential habitat loss to golden eagle ranges in the vicinity of wind farms (Fielding *et al.* 2020). The GET model results are shown in Volume 2, Figure 8.21. The GET model is used to predict habitat use by eagles generally, based on the presence of suitable habitat, slope, aspect and distance to a ridge. The preference index that underlies the GET model is based on an extensive dataset of GPS positions of young satellite tagged golden eagles in Scotland. Given the locational, topographical and habitat context of the Site, there would be no appreciable 'fragmentation / barrier effect' within any territory. All known golden eagle territories are over 2 km away these are shown in Confidential Annex 8.3 there is not considered to be a significant effect for any GET. In addition, as outlined below in Section 8.105 the GET model supports that golden eagle foraging ranges are significantly higher than 6 km. Relatively low levels of flight activity were recorded during vantage point surveys and breeding raptor surveys. Furthermore, the majority of golden eagle flight activity occurred in Year 2 non-breeding season. This indicates some use of the Site as a foraging resource, despite this it is considered that there is more than sufficient alternative foraging habitat available in the wider area to support any birds that are temporarily displaced from traditional foraging areas during construction of the Proposed Development. No nest or roost sites were identified within the Site, indicating that it is of limited value as a breeding site.
- 8.106 Prior to the replacement of the old PAT Model with the GET model, which assumed a 6 km radius around a territory centre point as the core foraging range, and assessed loss of habitat (due to wind farm avoidance) in that context (i.e. the lost area as a proportion of a 6 km radius circle). The 6 km core range is now evidently too low, given insights into use of the landscape from the GET Model and the distances birds have been travelling. Evidently the GET model supports that the foraging range of eagles can be significantly higher than 6 km, consequently the significance of losing areas to wind farms will tend to diminish (McLeod 2002, Fielding *et al.* 2020). Therefore, the effect of Habitat Loss (Direct and Indirect Due to Displacement) on golden eagle would be of low magnitude and minor significance which is not significant in EIA terms.

Potential Collision Risk during Operation

- 8.107 Golden eagles are potentially vulnerable to collision with wind turbines during display flights, interactions with other eagles, mobbing intruders, when hunting and moving between favoured hunting areas and nest / roost sites (Whitfield *et al.* 2008). However,

there have been few confirmed reports of golden eagle collisions at onshore wind farms in Scotland. This is in contrast to very high numbers of collision fatalities recorded at certain wind farms in North America and a total of 22 reported incidents in mainland Europe, including wind farm sites in Spain, Norway and Sweden (Dürr 2019. NatureScot currently recommends an assumed avoidance rate of 99% for golden eagle when using the Band CRM (NatureScot, 2018).

- 8.108 As a long-lived, relatively scarce raptor with a low reproductive rate, additive collision mortality could result in significant effects on population dynamics, particularly if the population is already under pressure from other sources of mortality, such as human persecution / illegal killing. However, displacement effects, particularly in relation to territorial birds, appear to be the more important potential impact from operational wind farms on this species in Scotland (Fielding *et al.*, 2022), this is outlined above in Section 8.102-8.104 and in examples from America and mainland Europe highlighted within Section 8.106.
- 8.109 With a breeding population of at least **52 pairs within NHZ 14 (Challis *et al.* 2022)**. The **estimated collision risk to golden eagle**, using an **avoidance rate of 99 %** and calculated on the basis of flight activity by golden eagles recorded at PCH within the VP survey area, predicts the **loss of approximately two golden eagle every 35 years. To put this into perspective the CRM predicted a mean annual collision rate of 0.061 or 2.14 collisions every 35 years for a 40 m air gap, so $0.061/104$ ($104 = \text{total number of birds from 52 pairs}$) $\times 100 = 0.06\%$ an insignificant proportion of the NHZ 14 population.** The collision risk calculations have employed a conservative estimate figure of 55.2 % for turbine downtime.
- 8.110 Data emerging from the expansion in satellite tracking of young golden eagles in Scotland has also shown relatively consistent macro-avoidance around operational wind farms (Whitfield & Fielding, 2017). Golden eagles do still occasionally pass through wind farms, but they tend to fly above turbine height or appear to deliberately fly through gaps between the turbine arrays. Whitfield & Fielding (2017) analysed GPS location data from over 100 young (dispersal phase) satellite tagged golden eagles relative to 39 wind farm sites. Only 0.03% of the records (totalling 360,711 location fixes) were within 500m of an operational wind turbine. Consequently, the risk of the predicted collision rate actually occurring is considered to be very low.
- 8.111 Overall impacts on the NHZ 14 breeding and non-breeding golden eagle population arising from collision mortality are of low magnitude and negligible significance which is not significant in EIA terms.

White-Tailed Eagle

Disturbance during Construction and Decommissioning

- 8.112 As there are no known white-tailed eagle nesting or roosting sites within the breeding raptor or eagle survey areas. Potential impacts of construction or decommissioning disturbance to White-tailed eagle are considered to be of very low to zero magnitude and negligible significance at the scale of the NHZ 14 population. For potential

breeding/roosting white-tailed eagle, safe working distances of at least 500 m are recommended.

Habitat Loss (Direct and Indirect Due to Displacement)

- 8.113 As there was very little site use by white-tailed eagle, direct and indirect habitat Loss for white tailed eagles resulting from the Site is predicted to be extremely small. However, it should be acknowledged that activity levels could increase in future if white-tailed eagles start to breed or roost within close proximity of the site. Currently, any impact will be of low magnitude and negligible significance at the scale of the NHZ population. There is also a possibility that white-tailed eagles will generally avoid areas developed for turbines resulting in additional habitat loss. Therefore, assuming that the areas between turbines are unlikely to be available to foraging white-tailed eagles on the basis of avoidance of turbines, displacement and loss of habitat has been calculated using a 500 m radius buffer around each turbine.
- 8.114 The loss of foraging habitat due to displacement is not expected to result in any significantly reduced foraging opportunities for range-holding white-tailed eagles which have a core foraging range of 5 km and a maximum range of 13 km (NatureScot 2016). Overall, the impacts of habitat loss on white tailed eagles are considered to be of low magnitude and negligible significance at the scale of the NHZ 14 population.

Potential Collision Risk during Operation

- 8.115 Since 2002 a total of 321 white-tailed eagles have been reported killed in collisions with wind turbines in mainland Europe, mostly at wind farms in Germany, Norway and Sweden (Dürr 2019). At least two fatalities have been reported from wind farms in Scotland. The species high vulnerability to collision is thought to be related to flight behaviour, with a large amount of recorded activity at wind farm sites, at PCH (Hötter et al. 2013).
- 8.116 Certain wind farm sites have been responsible for a high proportion of the total number of turbine fatalities reported in Europe. A long-term study at Smøla wind farm in Norway has included carcass searches and recording of collisions (May et al. 2013). This wind farm overlaps with an area that supports very high densities of breeding white-tailed eagles. Various studies at Smøla have reported very high collision rates with a large percentage being adult birds (May et al. 2013), although many of the adults killed were not thought to have been part of the local breeding population (Dahl et al., 2012). Between 2005 and 2016 a total of 75 white-tailed eagles were found dead at Smøla wind farm (Dürr 2019), comprising 30 adults, 27 sub-adults, two juveniles and 16 birds of undetermined age. A high proportion of recorded fatalities were during the spring and associated with increased territorial activity, potentially reducing the bird's awareness of the turbine blades (Nygård et al. 2010).
- 8.117 Although very few white-tailed eagle fatalities have so far been reported at wind farms in Scotland the frequency of collisions is likely to increase in the future as the population, primarily associated with the western Isles and western seaboard, expands east into areas where wind farms are more prevalent. A population and range modelling study published in 2016 considered the potential impacts of illegal killing and renewable energy development on the Scottish white-tailed eagle population (Sansom et al. 2016).

It concluded that such sources of additional mortality would hinder population growth but should not result in population declines, in the medium-term at least.

- 8.118 The Site is not located close to any known nest sites but may occasionally be used for hunting by adults.
- 8.119 The estimated collision risk to white tailed eagles, using an avoidance rate of 95 %⁷ and calculated on the basis of flight activity by white-tailed eagle recorded at risk height within the VP survey area, predicts the loss of less than one (0.70) white-tailed eagle every 35 years and <1 (0.020) annually. The collision risk calculations have employed a conservative estimate figure of 50% for turbine operation.
- 8.120 This level of additional annual mortality is not considered to be significant at the national and NHZ 14 population scale but could affect breeding success for the small and expanding population within the region, if a high proportion of the predicted mortality were to affect territory holding adult birds. However, this affect would still only be of minor significance at the scale of the NHZ 14 and regional population.
- 8.121 With a breeding population of at least 41 pairs within NHZ 14 (Challis *et al.* 2022) and very low site use and flight activity during the non-breeding season, overall impacts on breeding and non-breeding white tailed eagles arising from collision mortality are of low magnitude and negligible significance at the scale of the NHZ, see Table 8.9.

Hen Harrier

Disturbance during Construction and Decommissioning

- 8.122 Disturbance during the construction period is unlikely to discourage breeding attempts by hen harriers.
- 8.123 The nearest nest site is more than 750 m⁸ from any proposed construction activity (see Confidential Annex 8.3). Suitable foraging, breeding and roosting habitat is present for hen harrier within 750 m and in the wider area surrounding the Site, this is within the recommended disturbance buffers in NatureScot (2022) guidance (750m for hen harrier). As such, disturbance during construction works could temporarily deter hen harrier from using these areas. However, the risk of disturbance to any new nest or roost sites within or around the Proposed Development Site would be avoided through implementation of the BPP.
- 8.124 No impacts from construction disturbance are predicted from construction or decommissioning and are considered to be of negligible magnitude and negligible significance at the scale of the NHZ 14 breeding population. For potential breeding/roosting hen harrier, safe working distances of at least 750 m⁸ are recommended.

Habitat Loss (Direct and Indirect Due to Displacement)

⁷ [Wind farm impacts on birds - Use of Avoidance Rates in the NatureScot Wind Farm Collision Risk Model | NatureScot](#)

⁸ The maximum recommended disturbance buffer for this species in NatureScot (2022) guidance

- 8.125 Whilst flight activity indicates relatively high foraging use over the Site, it is considered that there is sufficient alternative foraging habitat available in the wider area to support any birds temporarily displaced from traditional foraging areas during construction of the Proposed Development. No nest or roost sites were identified within the Site, indicating that it is of limited value as a breeding site. Therefore, the effect of habitat loss and indirect effects due to displacement on hen harrier would be of low magnitude which is not significant in EIA terms.

Potential Collision Risk during Operation

- 8.126 CRM results of 0.010 during the breeding season and 0.002 during the non-breeding season total 0.012 annually, these results are very low and insignificant at regional and NHZ 14 scale. The potential loss of 0.012 hen harrier every 35 years is very small in the context of an estimated breeding population of 53 pairs within NHZ 14 (Challis *et al.* 2022). No significant impacts from potential collision risk are predicted for hen harriers and are considered to be of low magnitude and negligible significance at the scale of the NHZ 14 population Table 8.9.

Black Grouse

Disturbance during Construction and Decommissioning

- 8.127 Wind farm operation may cause some disturbance of lekking, breeding and foraging black grouse from areas close to turbines and other infrastructure. Black grouse have been assessed as having medium sensitivity to human disturbance in NatureScot (2022) guidance, which recommends a disturbance buffer of 500-750 m for lekking males.
- 8.128 A review of the impact of wind farms on grouse species by Coppes *et al.* (2020) found that lekking black grouse in Scotland and Austria may be affected by infrastructure at up to distances of 500 m, with indications that impacts may continue over larger distances in some instances. Earlier evidence from Austria has also suggested that black grouse leks may be adversely affected by wind farms, although it is not clear what the exact causes may be (Zeiler & Grünsachner-Berger 2009). A study by Zwart *et al.* (2015) of several Scottish wind farm sites did however find no evidence in the change in abundance of lekking males at operational wind farm sites following construction. The study did report that some lek locations moved locally following construction, but that this may have been due to several factors, including the response to provision of positive habitat management measures for the species away from operational infrastructure (Zwart *et al.* 2015). This study also reported evidence of frequent use of habitats within wind farm sites, including beneath operational turbines (Zwart *et al.* 2015).
- 8.129 In 2018 one small black grouse lek of three individuals was identified <500 m from the Proposed Development (single males are more likely to establish new leks at different sites than use traditional lekking sites (Rathore *et al.* 2023)). Another larger lek of four individuals was identified in 2019 within the Proposed Development's construction footprint. However, this lek appears to be infrequently used and there has been no further records of lekking activity at this location across all other black grouse survey years. Should this lek be found to have reestablished during pre-commencement surveys appropriate mitigation will be utilised as outlined in Table 8.10. All other leks including

those identified in 2025 were >500m from the proposed development, see Confidential Appendix 8.4. Despite this, on the basis of the implementation of industry standard good practice measures (see Table 8.10) there is no potential for significant construction phase effects upon black grouse. There would be no micro-siting close to any identified lek holding two or more males. This will avoid the potential for disturbance to lekking males, informed through pre-commencement surveys. No impacts from construction or decommissioning disturbance are predicted and are considered to be of low magnitude and minor significance at the scale of the NHZ14.

8.130 *Habitat Loss (Direct and Indirect Due to Displacement)*

- 8.131 No significant effects are predicted from the Proposed Development due to the large availability of lekking, nesting and foraging habitats in the surrounding area. Restoration of peatland habitats provided as part of a HMP for the Proposed Development will deliver new and enhanced foraging opportunities for black grouse. Direct or indirect habitat loss for this species is considered to be of low magnitude and negligible significance at the scale of available habitat within NHZ14.

Potential Collision Risk during Operation

- 8.132 The Scottish black grouse population is estimated to be around 3400 and the overall UK population is estimated to be around 4850 (Sim *et al.* 2008). There are no estimates available for the NHZ14 black grouse population (Sim *et al.* 2008). Overall, black grouse revealed a collision risk rate of 284 years per collision, therefore no significant impacts from potential collision risk are predicted for black grouse and are considered to be of low magnitude and negligible significance at the scale of the Scottish and UK populations see Table 8.9.

Osprey

Disturbance during Construction and Decommissioning

- 8.133 The potential for disturbance during the construction period is negligible as no evidence of breeding was recorded. However, any new breeding attempts by osprey within the vicinity of proposed construction activities would be identified during pre-construction surveys detailed in the BPP for the Site. The BPP would then detail appropriate measures to avoid construction disturbance to the breeding attempt in compliance with legislation. All construction will be undertaken (following most recent NatureScot guidance 2022) at distances of at least 750 m from the nearest osprey nest site. Potential impacts of construction or decommissioning disturbance are considered to be of very low to zero magnitude and negligible significance at the scale of the NHZ.

8.134 *Habitat Loss (Direct and Indirect Due to Displacement)*

- 8.135 The majority of foraging activity by osprey was recorded at distances greater than 500 m from any proposed construction activity / Site infrastructure and no impacts of direct or indirect habitat loss are predicted for this species at the scale of the NHZ 14 breeding population.

Potential Collision Risk during Operation

- 8.136 CRM results of 0.003 during the breeding season and 0.000 during the non-breeding season totalling 0.003 annually. These results are very low and insignificant at regional and NHZ 14 scale. In addition, osprey revealed a collision risk rate of 357.82 years per collision. Consequently, no significant impacts from potential collision risk are predicted for osprey. Finally, with a breeding population of at least 20 pairs within NHZ 14 (Challis et al. 2022) and very low site use and flight activity during the breeding and non-breeding season, overall impacts on osprey arising from collision mortality are of low magnitude and negligible significance at the scale of the NHZ, as shown within Table 8.9.

Curlew

Disturbance during Construction and Decommissioning

- 8.137 Wind farm operation may cause some disturbance to three identified, probable breeding territories⁹ (See Volume 2, Figure 8.18 and 8.19) and foraging curlew from areas close to turbines and other infrastructure. Curlew have been assessed as having high sensitivity to human disturbance in NatureScot (2022) guidance, which recommends a disturbance buffer of 200-300 m from identified breeding sites.
- 8.138 Any additional breeding attempts by curlew within the vicinity of proposed construction activities would be identified during pre-construction surveys detailed in the BPP for the site. The BPP would then detail appropriate measures to avoid construction disturbance to any breeding attempts in compliance with legislation. All construction will be undertaken (following most recent NatureScot guidance 2022) at distances of at least 300 m from the nearest curlew nest site. Potential impacts of construction or decommissioning disturbance are considered to be of very low to zero magnitude and negligible significance at the scale of the NHZ.

Habitat Loss (Direct and Indirect Due to Displacement)

- 8.139 No significant effects are predicted from the proposed Allt Domhain Wind Farm due to the large availability of nesting and foraging habitats in the surrounding area. O'Brien (2004) estimates that in Scotland around 45,000 pairs bred in farmland and 13,000 in the uplands, a total estimated population of 58,000. Enhancement provided as part of a HMP for the Proposed Development will deliver new and enhanced foraging and nesting opportunities for curlew and mitigate any potential impact. Direct or indirect habitat loss for this species is considered to be of low magnitude and minor significance at the scale of available habitat within Scotland and the NHZ14.

Potential Collision Risk during Operation

- 8.140 CRM results of 0.0002 during the breeding season and 0.000 during the non-breeding season total 0.0002 annually, these results are very low and insignificant at regional and NHZ 14 scale. The potential loss of 0.0002 curlew every 35 years is very small in the context of an estimated Scottish population of 58,000 O'Brien (2004). Consequently, significant

⁹ <https://www.bto.org/sites/default/files/u36/downloads/breedingcodes.pdf>

impacts from potential collision risk are not predicted for curlew and are considered to be of low magnitude and negligible significance at the scale of the Scottish population Table 8.9.

Greenland White-fronted Goose

Disturbance during Construction and Decommissioning

- 8.141 Comprehensive GWFG monitoring reports (Summarised in Section 4.3 of Technical Appendix 8.1) by Ecology Consulting for the neighbouring Blary Hill Wind Farm were shared with RPS by RES. These reports provide evidence that clearly indicates that the GWFG core flight path is directly west/northwest and southwest between Glenbarr and Loch Arnicle. The monitoring reports evidence that there is almost total avoidance of the Allt Domhain Site which is further east from the already operational Blary Hill Windfarm. In addition, Loch Arnicle is not a designated SPA Loch, however it is noted that it may be considered functionally linked. Loch Arnicle has been identified as an infrequently used night roost by Ecology Consulting Ltd who undertook the work on behalf of RES.
- 8.142 GWFG have been assessed as having medium sensitivity to human disturbance in NatureScot (2022) guidance, which recommends a disturbance buffer of 200-600 m for non-breeding foraging birds.
- 8.143 GWFG favour wetland, grasslands and farmland for feeding and roosting¹⁰ all of these habitats are largely absent on the site see Technical Appendix 7.5, and Volume 2 Figure 7.2. In the highly unlikely event that any new occurrences of foraging GWFG occur on the site, all construction will be undertaken (following most recent NatureScot guidance 2022) at distances of at least 200 m from any potential foraging geese. Having taken the above into consideration potential impacts of construction or decommissioning disturbance are considered to be of negligible magnitude and negligible significance.

Foraging Habitat Loss (Direct and Indirect Due to Displacement)

- 8.144 There was no site use by GWFG because habitats present onsite are not suitable for foraging GWFG, as a result direct and indirect habitat Loss for GWFG resulting from the Site is predicted to be negligible.

Potential Collision Risk during Operation

- 8.145 Table 16 in Technical Appendix 8.1 and Volume 2 Figure 8.13 presents the incidental records of Greenland white-fronted geese recorded (outside of the VP viewsheds) during the VP surveys at the Site.
- 8.146 White-fronted geese were recorded on two occasions during the non-breeding season in 2018 – 2019. One flight was recorded during autumn (September) 2018, which comprised a flock of 33 geese of unidentified species, although they were suspected to have been Greenland white-fronted geese due to their size and calls. These birds were observed flying over the forestry associated with Blary Hill to the west of the Site from the direction of Loch Arnicle. The flight path was recorded at PCH. A further six Greenland

¹⁰ <https://www.rspb.org.uk/birds-and-wildlife/white-fronted-geese>

white-fronted goose flights were recorded in late winter, all on the same day in February 2019. These involved approx. 2,000 individuals from the same flock which were observed during a dawn survey departing Loch Arnicle where they were presumed to have roosted overnight. The birds departed in six flights recorded in quick succession of one another, in flocks ranging between 10 and 1,000 birds. The majority flew in a northerly and westerly direction presumably towards nearby foraging grounds around Glenbarr to the west, while a flock of 70 birds flew due east in the general direction of the Site before being lost from view. All flights were recorded at PCH, however, none of them were observed passing over the Site.

- 8.147 During a survey in October 2019, two groups of 57 and 24 Greenland white-fronted geese were recorded flying into land on Loch Arnicle at dusk, one of which was observed flying at PCH.
- 8.148 Greenland white-fronted geese were not recorded during the VP surveys between 2020 and 2025.
- 8.149 Consequently, despite being designated as an SPA qualifying species of the Kintyre Goose Roosts SPA. With the reasoning outlined above, significant impacts from potential collision risk are not predicted for GWFG and are considered to be of negligible magnitude and negligible significance on the Kintyre Goose Roosts SPA non-breeding population¹¹ see Table 8.9.

Cumulative Effects

- 8.150 The EIA Regulations require the cumulative effects of the Site with other relevant projects or plans to be assessed. NatureScot guidance (NatureScot, 2025c) on assessing cumulative effects has been followed.

Construction Phase

- 8.151 No habitat within any designated site or their immediate surroundings will be lost or modified due to construction of the Site. However, it was determined that curlew, golden plover, hen harrier, golden eagle and white-tailed eagle will lose foraging habitat. In addition, curlew would lose approximately three probable breeding territories and black grouse would lose two lek sites due to habitat loss or modification. None of the other IOFs would lose any foraging habitat, nest or roost sites due to habitat loss or modification. This is because of appropriate mitigation and compensation measures which will be outlined in the BPP, under the appropriate condition stipulated by the LPA. Consequently, following this condition there is not considered to be any potential for significant impacts on IOFs due to cumulative habitat loss and this has therefore been scoped out of the assessment.
- 8.152 In considering cumulative effects, it is necessary to identify any effects that are minor (or greater) in isolation (see Table 8.6) but that may be greater cumulatively. "Target" species were taken to be those species of high Nature Conservation Importance (Table 8.8) for which there was some indication of a potential effect as a result of the Site, which

¹¹ <https://www.nature.scot/sites/default/files/special-protection-area/8518/spa-citation.pdf>

may be exacerbated cumulatively. However, no significant effects of the Site were identified, and all effects on all bird species were deemed to be of negligible significance (see Table 8.6). As such, the predicted in-isolation effects of the Site are considered to have no potential to contribute to cumulative effects and are, therefore, negligible across all species.

Operational Phase

- 8.153 Operational Phase maintenance works at the Site will be of limited extent (both spatially and temporally) and are expected to be infrequent. As noted above, If any significant maintenance works are required during the operational phase, the BPP measures outlined in under Embedded Mitigation (Table 8.10) would be applied to ensure compliance with relevant legislation protecting all breeding birds. Additionally, it is considered likely that birds will habituate to disturbance from the operational turbines. As such, there is not considered to be any potential for the Site to make a material contribution to any cumulative impacts on IOFs due to disturbance, displacement and barrier effects during the operational phase and this has therefore been scoped out of the assessment.
- 8.154 Predicted collision rates were negligible for GWFG, golden plover collision rates were of low magnitude and minor significance, golden eagle collision rates were of low magnitude and negligible significance and all other species including white-tailed eagle, hen harrier, black grouse, osprey and curlew had collision rates of low magnitude and negligible significance. See Table 14 of the Technical Appendix 8.2. Please note some windfarm data was not available on the NatureScot onshore windfarm proposals dataset.

Decommissioning Phase

- 8.155 Potential impacts on IOFs during decommissioning of the Proposed Development cannot be reliably predicted at this stage; potential cumulative effects on IOFs during the decommissioning phase are therefore not assessed.

Table 8.9. Summary of cumulative collision risk to ornithological receptors scoped into the assessment from wind farm developments within NHZ 14

Site	Status	Date of Application / Approval/ Installation	Turbine Number	Proximity to Allt Domhain Site (km)	Collision Risk Rate (per year)							
					Golden eagle	Hen harrier	White-tailed eagle	Greenland white-fronted goose	Black grouse	Golden plover	Curlew	Osprey
Proposed Allt Domhain	Application	-	9	-	0.061	0.012	0.02	0	0.004	1.027	0.0002	0.003
Beinn an Tuirc	Operational	2001	45	0.00	0.002	-	-	-	-	-	-	-
Blary Hill	Operational	2021	14	0.00	0.001	0.136	-	-	<0.001	0.000	0.050	0.002
Beinn an Tuirc Extension (Phase 2)	Approved	2014	19	0.00	0.090	-	-	0.000	-	-	-	-
Creggan	Application	2017	18	0.00	-	0.220	-	1.030	0.013	-	-	-
Beinn an Tuirc Phase 3	Approved	2021	14	0.63	0.023	-	-	0.005	-	-	-	-
Auchadaduie wind farm	Application	2017	3	0.70	-	-	-	0.080	-	-	-	-
Clachaig Glen 2	Approved	2024	14	1.84	0.148	0.011	0.052	-	-	0.679	-	0.179
Tangy IV	Approved	2019	16	2.10	-	0.001	-	0.044	-	-	0.181	-
Tangy Wind Farm	Operational	2003	15	3.80	-	-	-	0.003	-	-	-	-
Tangy Farm (Extension)	Operational	2007	7	4.39	-	-	-	0.003	-	-	-	-
Killeen	Approved	2024	9	6.04	0.150	0.700	0.575	0.260	0.000	0.120	-	0.010
Deucheran Hill	Operational	2001	9	6.18	0.000	-	-	-	-	-	-	-
Cour	Operational	2016	10	9.47	0.034	0.036	-	0.018	-	-	-	-

Site	Status	Date of Application / Approval/ Installation	Turbine Number	Proximity to Allt Domhain Site (km)	Collision Risk Rate (per year)							
					Golden eagle	Hen harrier	White-tailed eagle	Greenland white-fronted goose	Black grouse	Golden plover	Curlew	Osprey
High Constellation	Approved	2020	10	11.18	0.099	0.050	0.013	0.070	0.021	0.156	-	-
Eascairt wind farm - Kintyre	Approved	2016	13	17.06	0.071	0.038	-	-	-	0.987	0.006	-
Freasdaill	Operational	2017	11	21.02	0.002	-	-	-	-	-	0.118	0.000
Breackerie	Application	2023	13	21.96	0.024	0.016	0.031	0.017	-	-	-	-
Airigh Wind Farm	Approved	2020	14	22.53	0.022	-	-	-	0.000	-	-	-
Rowan	Approved	2024	13	32.75	0.028	0.001	-	-	-	-	-	0.014
Allt Dearg Community Wind Farm	Operational	2012	12	38.19	0.071	0.003	-	-	-	-	-	-
Srondoire	Operational	2015	3	38.72	0.021	-	-	-	-	-	-	-
Glasvaar Wind Farm	Application	2022	38	57.48	0.067	0.006	0.138	-	-	-	-	-
An Suidhe	Operational	2010	23	72.05	-	-	-	-	-	0.460	-	-
Ardchonnell	Application	2023	18	75.40	0.044	-	0.028	-	-	-	-	-
An Carr Dubh	Application	2023	13	76.10	0.063	0.025	1.228	-	-	-	-	-
Creag Dhubh (Strachur)	Approved	2022	9	76.40	0.075	0.001	-	-	-	-	-	-
Blarghour S36C Wind Farm	Approved	2024	14	78.97	0.080	0.015	0.103	-	-	0.018	0.038	0.030
Ladyfield	Application	2023	13	83.30	0.072	0.005	0.017	-	-	0.001	-	-
Carraig Gheal	Operational	2013	20	84.14	0.015	-	-	-	-	-	-	-

Site	Status	Date of Application / Approval/ Installation	Turbine Number	Proximity to Allt Domhain Site (km)	Collision Risk Rate (per year)							
					Golden eagle	Hen harrier	White-tailed eagle	Greenland white-fronted goose	Black grouse	Golden plover	Curlew	Osprey
Cruach Clenamacrie wind Farm (Glen Lonan)	Application	2024	6	88.22	0.020	0.010	-	-	-	-	-	-
Beinn Ghlas	Operational	1999	14	89.76	0.034	-	-	-	-	-	-	-
Total					1.317	1.286	2.205	1.53	0.038	3.448	0.3932	0.238

Cumulative effect assessment

- 8.156 **Cumulative effects** - This can include direct habitat loss, disturbance, barrier effects and collision risk. The potential for the Proposed Development to make a material contribution to cumulative effects on IOFs is assessed below following NatureScot guidance (2018). Note that developments that have been refused or withdrawn were excluded from the assessment because, even if these applications are re-submitted, it is likely that the development layout and/or number of turbines, and hence potential effects on IOFs, will change and/or the development may never be consented. Proposed developments in planning but for which an application has not been submitted (i.e. those at the screening or scoping stage) were also excluded from the assessment because it is assumed that the number and design of turbines/infrastructure has not been finalised at this stage, and an assessment of effects on IOFs will not be publicly available.
- 8.157 **Cumulative Habitat Loss, Direct habitat loss** - this included negligible amounts of foraging habitat for a limited number of species, and small amounts of habitat suitable for ground-nesting birds such as waders and potentially some raptors (although no raptor territories were located in areas of landtake). However, it is considered highly unlikely that habitat loss will result in the loss of breeding territories of any IOFs. Moreover, direct habitat loss will be offset by the habitat enhancements outlined in the HMP, which are likely to improve habitat suitability for breeding waders such as curlew, and potentially ground-nesting raptors such as merlin and hen harrier. It is therefore highly unlikely that direct habitat loss resulting from construction of the Proposed Development will result in any potentially significant cumulative effects.
- 8.158 **Cumulative Disturbance and Displacement** - disturbance effects are predicted to be of low to negligible magnitude for all IOFs. Of these, it was considered that, at worst, two black grouse leks and three curlew breeding territories could be displaced due to disturbance during construction. Based on the proportions of the NHZ14 populations that would potentially be affected, it is considered that the level of impact on the populations will be so minimal that it would not result in any potentially significant cumulative effects. Assessments of wader displacement are generally based on a 'worst-case scenario' and may therefore represent an overestimate. It is likely that at least some displaced birds will breed in the wider area, and some birds could potentially return to breed on or around a development site post-construction, particularly at those sites where habitat improvements have been completed/proposed to benefit breeding waders. 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 construction phase, the numbers of birds displaced annually will be relatively small. Although potential disturbance effects are predicted for black grouse and curlew, specific mitigation to avoid this are proposed in Sections 8.161-8.167 and, following implementation of these measures, there is not considered to be any potential for cumulative effects on either species.
- 8.159 **Cumulative Barrier Effects** - barrier effects are predicted to be of low to negligible magnitude for all IOFs. It is considered that golden eagle, white-tailed eagle and GWFG are the only IOFs that could potentially be significantly affected by cumulative barrier

effects. Any golden eagles breeding to the north and east of the Site could potentially have to fly around turbines to reach foraging resource. Furthermore, it is highly unlikely GWFG flight paths between their Glenbarr foraging grounds to the Loch Arnicle night roost would be significantly affected. Wind farm developments in the immediate vicinity of the Site include Beinn an Tuirc 1, Beinn an Tuirc 2 and Blary Hill. It is considered likely that the separation distance between these windfarms and the site's turbines will be sufficient to allow breeding birds to fly between the developments. Alternatively, depending on the breeding site, birds may fly around the Proposed Development via the south and north, e.g. following the Barr Water and associated tributaries. It is considered that the additional distance required to fly around rather than through the developments will be minor and unlikely to result in significant increases to daily energy costs. As such, cumulative barrier effects on golden eagle, white-tailed eagle and the Kintyre Goose Roosts SPA and Ramsar site GWFG populations are assessed as being of low magnitude and not significant. No adverse effects on the integrity of the SPA and Ramsar site are predicted.

- 8.160 **Cumulative Collision Risk** – collision risk is predicted to be of low to negligible magnitude for all IOFs.
- 8.161 In conclusion, for all bird species, the cumulative effects of the Site in combination with other projects in the NHZ are likely to be negligible and deemed to be not significant under the terms of the EIA Regulations.

Mitigation and Enhancement Measures

Embedded Mitigation

- 8.162 Embedded mitigation with relevance to ornithological receptors, includes the implementation of a BPP to protect breeding and roosting birds in accordance with relevant legislation. Subsequent sections of this chapter assume that the embedded mitigation described below will be fully implemented.

Bird Protection Plan

- 8.163 Under the WCA 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 WCA are afforded additional protection from disturbance. In addition, hen harrier is listed on Schedule 1A of the WCA, which protects it from harassment at all times (including the non-breeding season).
- 8.164 While roosting short-eared owl and merlin are not afforded special protection, both species are listed on Annex I of the Birds Directive. Merlin was recorded during the surveys (although there was no evidence of roosting); while there were no records of short-eared owl, it is possible that this species could be present in future. As such, it is proposed that potential disturbance to any roosting short-eared owl and merlin is minimised as part of the good practice measures outlined below.
- 8.165 The good practice measures outlined below would be incorporated into a detailed BPP, devised (as part of a planning condition) in consultation with NatureScot, to ensure the safeguarding of all breeding birds, as well as roosting hen harrier, merlin and short-eared

owl, during the construction phase. Note that the measures in Table 8.10 provide an outline of proposed mitigation only; full details would be included in the BPP itself.

- 8.166 To ensure that mitigation measures are reactive to changing conditions on the Site and compliance with legislation protecting breeding birds and non-breeding hen harrier, the BPP would be overseen by a suitably experienced and licensed Ecological Clerk of Works (ECow), who would attend the Site regularly to make or oversee observations of birds present in and around areas where works are planned, and identify any potential constraints to works and/or reactive mitigation needs.
- 8.167 Routine maintenance required during operation is expected to be minimal, limited to small areas at any one time and of a short duration. However, should significant operational maintenance works be required during the nesting bird season, or if any roosting hen harrier, merlin or short-eared owl are suspected or confirmed to be present during the operational phase, the mitigation measures outlined will be explored in order to protect breeding birds and roosting hen harrier, short-eared owl and merlin that may move into the area, and ensure compliance with relevant legislation.
- 8.168 As decommissioning works are likely to be of a similar nature and duration as construction activities, it is proposed that the mitigation outlined should be implemented during the decommissioning phase, following review and update (if required) to ensure compliance with prevailing legislation.

Table 8.10. Proposed Bird Protection Plan Measures

Measure	Summary
Timing of works	Where possible, construction works should take place outside the main breeding bird season (March to August inclusive).
Pre-construction survey for lekking black grouse	Where construction works are required during the key lekking period for black grouse (late March to mid-May; Gilbert <i>et al.</i> , 1998), pre-construction survey of areas of suitable lekking habitat within 750 m of works would be completed by a suitably experienced and qualified ECoW, to check for the presence of black grouse leks.
Pre-construction survey for other breeding birds	Where construction works are required during the breeding bird season, the area within 500 m of works should be surveyed ahead of any operations, by a suitably experienced and qualified ECoW, to check for active nests of all bird species (excluding crossbill, which is covered above). Where there is suitable habitat for nesting species listed on Schedule 1 of the WCA 1981 (as amended) or Annex I of the Birds Directive, the Study Area would be extended to the maximum buffer distance for the relevant species recommended in NatureScot (2022) guidance.
Toolbox talk	A 'toolbox talk' would be delivered by a suitably experienced ECoW to ensure that all contractors working on the Site are aware of ornithological sensitivities and relevant legislation.
Protection of nesting birds	If any nests (or breeding territories of species listed on Schedule 1 of the WCA 1981 (as amended) or Annex I of the Birds Directive are identified during pre-construction surveys, an exclusion zone around the nest (or territory) would be established (with the distance appropriate to the species and agreed through consultation with NatureScot). No works would be permitted within the exclusion zone and no personnel or vehicles would be allowed to enter or pass through until the ECoW has confirmed that the chicks have fledged or the breeding attempt has failed.

Measure	Summary
Minimising disturbance to black grouse	There is potential for small black grouse leks recorded in 2018 and 2019 to be disturbed, however there is large availability of lekking, nesting and foraging habitats in the surrounding area, with more established traditional leks to the north of the Site containing between 4-6 individuals. Any new leks that are identified within 750 m of works during pre-construction surveys for this species during the key lekking period (late March to mid-May), a 750 m exclusion zone around the lek site would be established, within which no works would take place around the hours of dawn or dusk (with permitted working times to be determined by the ECoW through monitoring of the leks).

Proposed Enhancement

- 8.169 Restoration of peatland habitats will include the maintenance and re-wetting of modified peat areas as part of the HMP for the Site, which will be agreed in consultation with NatureScot.

Proposed Monitoring

- 8.170 Monitoring of the locations and breeding performance of black grouse, curlew, golden eagle and hen harrier, would be commissioned, and would continue prior to, during, and after construction to enable a 'before and after' assessment to be made. The monitoring would include black grouse lek surveys, moorland breeding bird and breeding raptor surveys of the site and appropriate buffers following standard survey methods. Monitoring would be commissioned and would be undertaken in years 1-5, 10, 15 and 20 of the operational phase of the Site. A report detailing the monitoring work would be published on an annual basis and made publicly available. Monitoring would be undertaken in line with best practice guidance (NatureScot, 2009).

Information to inform a Habitats Regulations Appraisal

- 8.171 There is one European site designated for ornithological interests with potential connectivity to the Site, namely the Kintyre Goose Roosts SPA, which is designated for its wintering population of GWFG. During baseline vantage point surveys GWFG were recorded and parts of the Site are within the core foraging range of GWFG (5-8 km) (NatureScot 2016).
- 8.172 Likely Significant Effects (LSEs) in HRA terms cannot be definitively excluded for the qualifying interests of the SPA. Consequently, the Scottish Government, as competent authority, will be required to carry out an Appropriate Assessment (AA) in view of the site's conservation objectives for its qualifying features. To assist with the AA relevant results of the surveys and desk-based study are summarised in Technical Appendix 8.2 and Confidential Annex 8.3. Please also refer to Sections 8.140-8.148 for GWFG. Based on this information, it is concluded that the Proposed Development would not adversely affect the integrity of the SPA.

Residual Effects

- 8.173 Mitigation required for the identified important ornithological receptors of the site have been detailed below, it also summarises the predicted residual effect of the Site on ornithological interests.

Table 8.9. Summary of Effects

Importance	Predicted Effect	Significance	Proposed Mitigation	Residual Effect
Construction				
All Species & IOFs: Golden/white-tailed eagle Hen Harrier Black Grouse	Habitat loss	Negligible	As outlined in the HMP TA 7.6: Peatland restoration Annual monitoring	Negligible
	Disturbance	Negligible	Bird Protection Plan – Suitable buffers following NatureScot Disturbance Distances Guidance	Negligible
Operation				
All Species & IOFs	Habitat loss	Negligible	As outlined in the HMP TA 7.6: Peatland restoration Annual monitoring	Negligible
	Disturbance	Negligible	Bird Protection Plan – Suitable buffers following NatureScot Disturbance Distances Guidance	Negligible
	Collision Risk	Negligible		Negligible
Decommissioning				
All Species & IOFs	Disturbance	Negligible	Monitoring as outlined in BPP.	Negligible
Cumulative				
All Species	None	Negligible	None	Negligible

Conclusions

- 8.174 Through the sensitive design of the Site, and commitment to best practice measures during construction, all potential effects on the conservation status of these receptors were assessed to be not significant. Mitigation has been proposed to further reduce the magnitude of these effects and to avoid legal offences, in the form of proposed safeguards in the BPP during construction and enhancement measures are provided in the HMP.

- 8.175 As detailed in Sections 8.140-8.148 the assessment identified limited evidence of connectivity between the Site and the Kintyre Goose Roosts SPA. This is because although GWFG from the SPA are known to use the surrounding area, there was no evidence that they regularly flew over the Site or made use of habitats within 1 km of turbines/infrastructure. Consequently, there will be no likely significant effects on the qualifying interests of the Kintyre Goose Roosts SPA.
- 8.176 The assessment identified no connectivity between the Site and the Sound of Gigha SPA or Arran Moors SPA (or other designated sites (SSSIs) and so there will be no likely significant effects on the qualifying interests of these European designated sites. The potential for significant ornithological effects was assessed for seven species (golden plover, golden eagle, white-tailed eagle, hen harrier, black grouse, osprey and curlew). The Site and any potential cumulative impact along with other developments was deemed negligible. With appropriate mitigation and enhancement measures habitat loss, disturbance, displacement and barrier effects to all IOFs were also deemed negligible.

Acronyms

- ARSG: Argyll Raptor Study Group
- BPP: Bird Protection Plan
- CIEEM: Chartered Institute of Ecology and Environmental Management
- ECoW: Ecological Clerk of Works
- EIA: Environmental Impact Assessment
- GET: Golden Eagle Topography (Model)
- GWFG: Greenland White-fronted Goose
- HMP: Habitat Management Plan
- HRA: Habitats Regulation Appraisal
- IOF: Important Ornithological Feature
- IUCN: International Union for Conservation of Nature
- MBBS: Moorland Breeding Bird Survey
- NHZ: Natural Heritage Zone
- OIA: Ornithological Impact Assessment
- PAT (Model): Predicting Aquila Territory Model
- PCH: Potential Collision Height
- RSG: Raptor Study Group
- RSPB: Royal Society for the Protection of Birds
- SPA: Special Protection Area
- SSSI: Site of Special Scientific Interest
- VP: Vantage Point
- WCA: Wildlife and Countryside Act

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Allt Domhain Wind Farm

Environmental Impact Assessment Report Volume I Chapter 9 Hydrology, Geology and Peat

June 2025

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9 HYDROLOGY, GEOLOGY AND PEAT

9.1 Introduction

9.1 This chapter considers the potential effects of Allt Domhain Wind Farm (the 'proposed development') on hydrology, geology and peat.

9.2 This chapter is also supported by the following figures as contained within EIA Volume 2: Figures:

- Figure 9.1: Superficial Geology;
- Figure 9.2: Bedrock Geology;
- Figure 9.3: Soils Mapping;
- Figure 9.4: Regional Hydrogeology;
- Figure 9.5: Groundwater Vulnerability;
- Figure 9.6: Hydrological Features; and
- Figure 9.7: Private Water Supplies.

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: Outline Water Crossing Inventory;
- Technical Appendix 9.2: Outline Peat Landslide Hazard Risk Assessment (PLHRA); and
- Technical Appendix 9.3: Outline Peat Management Plan.

9.4 Other relevant chapters include Chapter 7: Ecology.

9.5 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.

9.6 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.

9.2 Legislation, Policy, and Guidance

Legislation

- 9.7 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.
- 9.8 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 (i.e. surface water and groundwater bodies) 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.
- 9.9 The European Commission (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.
- 9.10 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).
- 9.11 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.
- 9.12 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).
- 9.13 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.

- 9.14 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.
- 9.15 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

- 9.16 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 Argyll and Bute Local Development Plan (LDP) 2, National Planning Framework 4 (NPF4) and other relevant guidance.
- 9.17 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)
- 9.18 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.
- 9.19 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.

9.20 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.

9.21 The following policies within the Argyll and Bute LDP 2 are also considered to be of relevance to the hydrological, geological and peat assessment presented within this chapter:

- Policy 04 Sustainable Development – states that developers should seek to demonstrate sustainable development principles, which include avoiding significant adverse impacts on land, air and water environment.
- Policy 30: The Sustainable Growth of Renewables – states that renewable energy developments will be supported where they are consistent with the principles of sustainable development and it can adequately demonstrate that there would be no unacceptable environmental effects, whether individual or cumulative, on local communities, natural and historic environments, landscape character and visual amenity, and that the proposals would be compatible with adjacent land uses. Applications for all wind turbine developments will be assessed against criteria which include the following:
 - Impacts on carbon rich soils, using the carbon calculator.
 - Effects on hydrology, the water environment and flood risk.
- Policy 59 Water Quality and the Environment – states that proposals for development that could affect the water environment will be assessed with regard to their potential impact. Natural watercourse features will be protected by preventing or avoiding development on sites where there would be an unavoidably detrimental impact upon a watercourse.
- Policy 79 Protection of Soil and Peat Resources – states that development will be supported where appropriate measures are taken to maintain soil resources and functions to an extent that is considered relevant and proportionate to the scale of the development. Developments shown to have a potentially significant adverse effect on soil resources and functions or peat structure and function in terms of

disturbance, degradation or erosion will not be supported unless it is demonstrated that:

- Such adverse effects are clearly outweighed by social, environmental or economic benefits of community wide importance arising from the development proposal; and
 - A soil or peatland management plan is submitted which clearly demonstrates how unnecessary disturbance, degradation or erosion of peat and soils will be avoided and how any impacts are to be mitigated. Evidence of the adoption of best practice in the movement of, storage, management, reuse and reinstatement of soils must be submitted along with any planning application.
- Policy 80 Geodiversity – states that geodiversity impact will be considered when assessing development proposals and that developments with a significant adverse effect on non-designated Geological Conservation Review Sites or Local Geodiversity Sites will not be supported unless it is demonstrated that:
 - Such adverse effects are clearly outweighed by social, environmental or economic benefits of community wide importance arising from the development proposal, and
 - The Council is satisfied that all possible mitigation measures have been incorporated to minimise adverse effects on the interests of the site.
 - Policy 82 Contaminated Land – states that where development is proposed at a site that is known to be contaminated, or at a site where there is a reasonable expectation of contamination, the applicant will be required to undertake a contaminated land assessment and implement suitable remediation measures in consultation with SEPA before the commencement of any new use.

Guidance

9.22 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)

9.3 Consultation

- 9.23 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.
- 9.24 The Scoping Opinion was received from the Scottish Government Energy Consents Unit (ECU) on 2nd June 2021.
- 9.25 Consultation relevant to the hydrology, geology and peat was undertaken with NatureScot, Argyll and Bute 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 9.1.

Table 9.1: Consultation Responses

Consultee	Date Received	Consultation Response	Where and how is this addressed?
Argyll and Bute Council	2 nd June 2021	Argyll and Bute Council indicated the following:	
		Where borrow pits are proposed as a source of on-site aggregate they should be considered and included in the EIA report detailing information regarding their location, size and nature.	No borrow pits are proposed to be formed within the development site area. All stone required for access track and hardstanding construction will be imported.
		An investigation into the presence of any private water supplies which may be impacted by the proposed Development is required to be undertaken.	A map of private water supply (PWS) abstractions provided in consultation with Argyll and Bute Council and field observations during site visits is provided as Figure 9.7. Potential effects on PWS are

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		The EIA report should include details of any supplies identified by this investigation, and if any supplies are identified, an assessment of the potential impacts, risks, and any mitigation which would be provided should be undertaken.	discussed in paragraphs 9.99 to 9.104.
		Where there is a demonstrable requirement for peat landslide hazard and risk assessment, the assessment should be undertaken as part of the EIA process to provide a clear understanding of whether the risks are acceptable and capable of being controlled by mitigation measures.	An outline Peat Slide Risk Assessment is provided in Technical Appendix 9.3.
		A Peat Management Plan (PMP) informed by peat survey work should be prepared. The PMP should demonstrate that the extent and characteristics of peat on-site have been investigated; excavations in peat have been minimised wherever possible through design iterations and adoption of appropriate design hierarchy; and that excavation and subsequent management of peat, including an estimation of quantities has been considered.	Several phases of peat probing works have been completed within the development site. These works have included buffer areas around proposed infrastructure locations to allow for micro-siting. The results of this have been used to inform the development design with a view to avoiding sensitive areas and areas of deep peat. An outline Peat Management Plan and an outline Peat Slide Risk Assessment are provided in Technical Appendices 9.2 and 9.3, respectively.
		Any crossing should be designed in a way so as not to reduce the existing capacity of the channel and ideally should be designed to convey the 200 year plus climate change flow. In designing the watercourse crossings, consideration should be given to options such as bottomless culverts, and it is recommended that any changes to existing crossing should not	Details of proposed new and altered water crossings are provided in Technical Appendix 9.1. Water crossings are discussed in paragraphs 9.112 to 9.113.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		reduce the existing capacity of the crossing.	
		Potential impacts on carbon rich soils should be undertaken utilising the carbon calculator tool, to fully assess any potential impacts that may occur. The Carbon Calculator and Carbon Emission Report should be used to produce a statement of expected carbon savings over the lifetime of the proposal.	Carbon savings are discussed in Chapter 14: Other Issues. Carbon balance calculations are presented in Technical Appendix 14.1.
NatureScot	12 th April 2021	Although NatureScot provided a scoping response, no comments specifically relating to Hydrology, Geology and Peat were provided.	N/A
SEPA	2 nd October 2024	SEPA did not provide a scoping response due to issues resulting from a cyber-attack. SEPA subsequently provided up to date general EIA/pre-application scoping advice for windfarms to highlight what they would be expecting to see in the application and EIA Report.	
		A drawing highlighting all proposed temporary or permanent infrastructure overlain with all lochs and watercourses (including 50m buffer).	A site layout plan providing details of temporary and permanent infrastructure overlain with all watercourses is presented in Chapter 3: Project Description
		Drawings highlighting interpolated peat depth survey data and an Outline Peat Management Plan	An outline Peat Management Plan (including interpolated peat depth drawings) is provided in Technical Appendix 9.2.
		A drawing highlighting the location of GWDTEs and existing groundwater abstractions (inc. buffers)	A map of potential GWDTEs identified from an NVC survey and associated buffers is provided in Chapter 7: Ecology and Technical Appendix 7.5: Phase 1 Habitat, NVC & GWDTE Survey. Potential effects on GWDTEs are discussed in paragraphs 9.85 to 9.98.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		Schedule of mitigation including pollution prevention measures	Mitigation measures are set out in paragraphs 9.154 – 9.186 and summarised in the Schedule of Mitigation in Chapter 15.
Argyll and Bute Council	24 th April 2025	Consultation relating to private water supplies. Argyll and Bute Council provided information on activities registered or licensed under the Controlled Activities Regulations in the vicinity of the site.	A map of private water supply (PWS) abstractions provided in consultation with Argyll and Bute Council and field observations during site visits is provided as Figure 8.7. Potential effects on PWS are discussed in paragraphs 9.99 to 9.104.
SEPA	2 nd October 2024	Following completion of the initial Phase 1 peat survey, SEPA were consulted (by way of a teams call where peat depth mapping was shared) to seek their feedback on the 'design chill' development layout and its potential impact upon peat. During this meeting SEPA indicated that they had some concerns over the location of T1, which was proposed to be constructed in an area of deep peat and asked that it be relocated. They also indicated that they were very unlikely to support a completely new access route to the site, especially one that will include a significant watercourse crossing and related works and encouraged continued dialogue with other local windfarm developers and landowners to make use of existing tracks. Phase 2 probing was completed by RPS in October 2024 to inform development design. Further Phase 1 and Phase 2 probing were also completed by RPS in January / February 2025 to inform potential access track routes.	Consultation feedback from SEPA has helped to guide the approach to design iteration (specifically the relocation of T1) and to minimise any impacts on peat (refer to Technical Appendix 9.2 Outline Peat Management Plan). See also SEPA email chain of 2nd October 2024 (Appendix D of Appendix 9.2 Outline Peat Management Plan) for details. SEPA were further contacted on 23 April 2025 to understand their appetite for reviewing/discussing the final design in relation to impacts on peat and some of the choices the Applicant has made in specific relation to T2 and T6 which remain on marginally deep peat and access routes.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
SEPA	16 th May 2025	Further consultation with SEPA (by way of a teams call) was undertaken to seek their feedback on the layout at the time and its potential impact upon peat and hydrological receptors (particularly in relation to the access route options). On the basis of this meeting SEPA recommend further peat probing is undertaken prior to the application submission (specifically in areas around T6 and T9 and sections of access track to the north of T4 and to the west of T2) and to ensure that a supporting Flood Risk Assessment is provided for the Barr Water bridge crossing if that option is taken forward.	At this stage further peat probing has not been undertaken. The turbine locations are considered to be fixed and are constrained by other factors including water course buffers, topography, buildability and wake issues from adjacent windfarms. The sections of access track that have been highlighted as being located on deep peat will be of floated construction, which will minimise impact to peat. See further detail in the Outline PMP in Technical Appendix 9.2. A detailed flood risk assessment for the area of the main bridge crossing will be undertaken following submission and if a decision is made to take the northern bypass access route forward.

9.4 Assessment Methodology and Significance

Scope of Assessment

Consultation

- 9.26 As noted in the previous Section, consultation has been undertaken with Argyll and Bute Council, NatureScot and SEPA. Responses and relevant considerations are noted in Table 9.1.

Study Area

- 9.27 The study area has incorporated the area within the site boundary and this assessment also considers any potential hydrological and hydrogeological effects up to 2 km from any proposed infrastructure (see Figure 3.1).
- 9.28 The location of private water supplies (PWS) within 1km of the proposed new infrastructure have been identified following consultations with Argyll and Bute Council, information provided by the applicant, site survey work and a review of available OS mapping.
- 9.29 It should be noted that two access route options (the Northern Bypass Route and the Blary Hill Route) have been included within the design and have been considered as part of this EIA. Both access routes commence from access points located on the A83, which is situated to the west of the main windfarm development site. The Blary Hill route utilises

existing access tracks that were formed as part of the development of the adjacent Blary Hill windfarm, whereas the northern bypass route will require the construction of a new access track on land situated to the north of the Barr Water before crossing the river and meeting the Blary Hill route in the central part of the site. From this point they form the main access route into the main windfarm area. Only one of these potential route options will be taken forward within the final development design.

- 9.30 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

- 9.31 Baseline conditions have been established primarily through desk-based research which has included:

- Consultation with SEPA, NatureScot and Argyll and Bute 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 future 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, the SNH Carbon and Peatlands Map 2016 and the James Hutton Institute National Soils Map of Scotland;
- 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);
- Review of Scottish Geology Trust, GeoSites (2023), mapping for geological designated sites; and
- Review of publicly available historical mapping.

Site Visit

- 9.32 Several site survey visits have been undertaken by members of the assessment team as described below:
- During peat depth survey work undertaken in winter 2024 / 25, 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), the location of any unrecorded PWS and the nature and condition of existing infrastructure (e.g. tracks), where present.

- The twenty two proposed new water crossings (four within the main windfarm development area, nine along the northern bypass route and nine along the main access route) were inspected during the peat survey work. Due to access restrictions applied by the landowner, the five existing water course crossings located along the Blary Hill route could not be inspected.
- Habitat and vegetation surveys were undertaken to provide information relevant to the identification of habitats which could represent groundwater dependent terrestrial ecosystems (GWDTE).

Peat Depth Survey

- 9.33 As indicated in the scoping report prepared by the Applicant a review of SNH's Carbon and Peatland 2016 Map suggested that the main windfarm development area comprised a mix of Class 1 and Class 2 soils, with the majority of the site being designated as Class 1. As such, it was considered that the majority of this part of the development site contained Nationally Important carbon-rich soils, deep peat and priority peatland habitats.
- 9.34 Peat depth surveys were subsequently undertaken at the site over the course of various phases. Phase 1 peat probing was initially carried out by Atmos Consulting in July 2020 (Phase 1a) and was undertaken across the developable area at the time to inform an understanding of general peat depth and distribution. These works were undertaken within the turbine development area only and were completed on a 100m grid. During these works, pockets of deep peat were encountered across the site but were most notable in central and north-western areas of the study area.
- 9.35 At this time, a National Vegetation Classification (NVC) survey of the main windfarm development area was undertaken by Tringa Ecology, and they considered that the blanket bog and other habitats present on site were highly degraded as a result of drainage and high grazing levels.
- 9.36 A second phase of Phase 1 probing (Phase 1b – 100m grid) was completed in September 2024 to facilitate the design of an alternative access track route leading from the Glen Barr road, crossing the Barr Water and traversing an area of land situated to the south of Arnicle farm.
- 9.37 Following completion of these works, 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.
- 9.38 SEPA were then consulted (by way of teams call where peat depth mapping was shared) to seek their initial feedback on the 'design chill' development layout and its potential impact upon peat. During this call SEPA raised some concerns with the location of T1 which was situated in the northern part of the development area and in the vicinity of some areas of deep peat. They also indicated that they would potentially object to the proposed access track route, as it would require the construction of a new bridge across the Barr Water.

- 9.39 Following this call, a third phase of Phase 1 probing (Phase 1c) was undertaken in October 2024, which focussed on an area of land that had been earmarked for the purposes of habitat management in the northern eastern part of the site. At this time, some initial Phase 2 probing (Phase 2a) was undertaken in the area where T1 and T2 were proposed to be located to provide additional peat depth information and to assist with site design.
- 9.40 The main Phase 2 probing (Phase 2b) was undertaken across the remainder of the development site (including the revised access track line) in late October 2024.
- 9.41 The Phase 2 surveys undertaken comprised detailed surveys at each proposed turbine and hardstanding location, along all proposed new access tracks/turning heads, and at other proposed infrastructure locations including the site substation and construction compound.
- 9.42 The pattern of peat probing in relation to proposed turbine locations and other infrastructure elements (all generally located away from deep peat following Phase 1 peat probing) 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.
- 9.43 Following some amendments to the proposed access track route (northern bypass route) two additional phases of Phase 2 peat probing (Phase 2c and 2d) and some additional gap filling Phase 1 probing (Phase 1d) were undertaken in the western part of the site and to the north of the Glen Barr Road in February and March 2025. These works were undertaken using the probing patterns described above.
- 9.44 Data obtained from the various peat depth surveys were subsequently used to plot the presence and distribution of peat across the revised 'design chill' development layout, create a peat contour plan, and feed into detailed design iteration. The data was subsequently used to inform an outline Peat Landslide Risk Assessment (PLHRA) and development of an outline Peat Management Plan (PMP); refer to Technical Appendices 9.1 and 9.2, respectively.
- 9.45 It should be noted that observations made during subsequent RPS peat depth surveys indicated that the condition of peat deposits encountered on site were consistent with those highlighted during the initial NVC surveys and were considered to be highly degraded. This was primarily due to the presence of artificial drainage within the main windfarm development area and high levels of grazing from sheep.

Assessment of Significance

Sensitivity

- 9.46 The sensitivity characteristics of hydrological, geological and peat resources have been guided by the matrix presented in Table 9.2, which lists indicative criteria.

Table 9.2: 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.
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 deep peat deposits. Moderate risk of flooding.
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.

- 9.47 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

- 9.48 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 9.3. Impacts from aspects of decommissioning are considered to be the same as or lesser than those for construction.

Table 9.3: 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>

9.49 Using these criteria, potential effects resulting from the proposed development have been assessed. These effects are presented in paragraphs 9.124 – 9.153. Details of generic and site-specific mitigation measures are given in paragraphs 9.154 – 9.186, with the remaining residual effects detailed in paragraphs 9.187 – 9.195.

Significance of Effects

9.50 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 9.4 below.

Table 9.4: 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	<i>Moderate</i>	<i>Minor</i>	<i>Negligible</i>	<i>Negligible</i>
Negligible	<i>Minor</i>	<i>Negligible</i>	<i>Negligible</i>	<i>Negligible</i>

9.51 The guideline criteria for the various categories of effect are provided in Table 9.5.

Table 9.5: Significance Criteria (Hydrology, Geology and Peat)

Significance	Definition	Guidance Criteria
<i>Major</i>	A fundamental change to the environment.	Loss of extensive areas of deep peat and / or geological resources. Changes in water quality or quantity affecting widespread catchments or groundwater reserves of strategic significance, or changes resulting in

Significance	Definition	Guidance Criteria
		substantial loss of conservation value to geological or aquatic habitats and designations.
<i>Moderate</i>	A large, but non-fundamental change to the environment.	Loss of localised areas of deep peat and / or geological resources. 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.

9.52 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 from an EIA perspective and, therefore, are those which may have an adverse effect on the status of waterbodies, watercourses, groundwater or geological resources.

9.53 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.

9.54 Cumulative effects have been accounted for through the prediction and evaluation of effects at a catchment-wide level.

Requirements for Mitigation

9.55 Committed mitigation measures are presented within this chapter where the potential to affect sensitive hydrological, geological or peat 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

9.56 An assessment of any predicted significant residual effects on sensitive hydrological, geological or peat receptors is presented within this chapter.

Limitations

- 9.57 No water quality monitoring or intrusive investigations, other than peat depth survey work as described in paragraphs 9.33 to 9.45, 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, be undertaken prior to and during construction to inform detailed engineering design, micro-siting, and environmental protection and control measures to be implemented.

9.5 Baseline Conditions

Designated Sites

- 9.58 Reference to the NatureScot Site Link map indicates that there are no designated sites located within the study area.
- 9.59 Glenacardoch Point, which is classified as a Site of Special Scientific Interest (SSSI) and Geological Conservation Review site is indicated to be located approximately 650m west of the main access track entrance on the A83 and approximately 5.5km from the main windfarm development area. Given its distance from the proposed infrastructure locations this area is considered unlikely to be affected by the proposed development and has therefore been discounted.
- 9.60 Argyll & Bute Council do not currently have a mineral safeguarding policy. As such, mineral safeguarding plans outlining any geological areas that may require protection are not currently available.
- 9.61 On this basis geologically designated sites will not be considered further within this assessment.

Geology (including Soils)

- 9.62 BGS online mapping for the area shows that the bedrock geology underlying the site is complex. The main windfarm development area and the eastern extent of the main access track route are shown to be underlain by metamorphic bedrock of the Beinn Bheula Schist Formation, which comprise pelite, semipelite and gritty psammite.
- 9.63 The central parts of both access track routes, in the area to the south of Arnicle Farm, are shown to be underlain by further metamorphic bedrock of the Green Beds Formation, with bands of the Glen Sluan Schist Formation and the Loch Tay Limestone Formation also noted. The Green Beds Formation comprise metavolcaniclastic rock, metalava or metatuffs, the Glen Sluan Schist Formation comprises pelite and semipelite with trace psammite, while the Loch Tay Limestone Formation comprises schistose calcareous psammite and semipelite with units of blue-grey, crystalline meta-carbonate rock. The eastern extent of both access track routes are underlain by metamorphic bedrock of the Ben Lui Schist Formation, which comprises schistose to gneissose semipelite. All of the above rocks were formed during the Neoproterozoic era approximately 541 to 1,000 million years ago.

- 9.64 A geological fault running from north-east to south west and roughly following the valley of the Barr Water is noted to cross through the central area of the site. At its closest point the fault is indicated to be situated approximately 2km north of the main windfarm development area (T2). It is noted that the proposed route of the northern bypass access track will cross this fault line in an area situated immediately to the north of the Barr Water and the location of the proposed bridge water crossing.
- 9.65 The bedrock geology as shown on BGS 1:50,000 scale mapping is shown on Figure 9.2.
- 9.66 BGS mapping shows that bedrock across the site area is generally overlain by Till, which are expected to comprise poorly sorted sand, gravel, cobbles, and boulders in a clay matrix. Localised areas of Alluvium (clay, silt, sand and gravel) and River Terrace Deposits (gravel, sand, silt and clay) are shown to be present in the vicinity of the Barr Water in central and south-western parts of the site. Localised areas situated in the far north eastern part of the main windfarm development area and in the central part of the site are shown to have little or no superficial material over bedrock.
- 9.67 With respect to soil resources, reference to the National Soil Map of Scotland indicates that soils within the main windfarm development area are classified as '*Dystrophic Blanket Peat*'. Soils in the north eastern part of the main windfarm development area, at the eastern extent of the proposed access track and localised areas along the proposed northern bypass route are classified as '*Peaty gleys*'. A localised area classified as '*Humus iron podzols*' are shown to be present in the central part of the northern bypass route in the vicinity of the Barr Water and the proposed crossing. Soils across the remainder of the site are classified as '*Noncalcareous gleys with humic gleys*'.
- 9.68 Land Capability for Agriculture (LCA) classification mapping indicates that the development site is underlain by low quality soils in terms of agricultural use with soil classifications ranging from 4.2 (grassland) – 6.3 (rough grazing).
- 9.69 The superficial geology as shown on BGS 1:50,000 scale mapping is shown on Figure 9.1 and peat mapping for the site area is shown on Figure 9.3.

Peat

- 9.70 The NatureScot carbon and peatland mapping (2016) defines that the majority of the windfarm development area comprises Class 1 peat, which is described as '*Peat soil.*' and includes '*nationally important carbon-rich soils, deep peat and priority peatland habitat that are likely to be of high conservation value*'. Areas of Class 2 peat are also noted to be present in western and north eastern extents of the windfarm area. Class 2 peat is described as '*Peat soil with occasional peaty soil*' and includes '*nationally important carbon-rich soils, deep peat and priority peatland habitat that have potentially high conservation value and restoration potential*'.
- 9.71 Peat deposits are not mapped along the majority of both access routes while localised areas of Class 4 peat are noted to be present in central parts of the proposed northern bypass route and at the eastern extent of the main access track. Class 4 peat is described as '*predominantly mineral soil with some peat soil*'. These areas are considered '*unlikely to be associated with peatland habitats*'

- 9.72 Peat depth surveys were undertaken as described in paragraphs 9.33 to 9.45, 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.
- 9.73 The locations and findings of the peat probes are illustrated within Technical Appendix 9.2: Outline Peat Management Plan.
- 9.74 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.
- 9.75 In total 1,156 peat probes were advanced across the development site with 280 probes in July 2020 (Phase 1a), 73 probes in September 2024 (Phase 1b), 572 probes in October 2024 (Phase 1c, Phase 2a and Phase 2b), 47 probes in February 2025 (Phase 2c) and 186 probes in March 2025 (Phase 1d and Phase 2d). 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.
- 9.76 The peat probing undertaken has generally confirmed that the majority of infrastructure has avoided deep peat (including T1 which was relocated following SEPAs concern in October 2024) with the exception of partial infrastructure associated with T2, T6 and some sections of track which are proposed to be floated. The average depth of peat across the site is 0.67m. The maximum recorded peat depth was 3.29m in the eastern part of the site.
- 9.77 On the basis of a National Vegetation Classification (NVC) survey of the main windfarm development area undertaken by Tringa Ecology, the blanket bog and other habitats present on site were considered to be highly degraded. Observations made during subsequent RPS peat depth surveys indicated that the condition of peat deposits encountered on site were consistent with these initial findings and considered to be highly degraded. This was primarily due to the presence of artificial drainage within the main windfarm development area and high levels of grazing from sheep.
- 9.78 Full details of the peat depth survey, together with an outline Peat Slide Risk Assessment, are provided in Technical Appendix 9.3. An outline Peat Management Plan is provided as Technical Appendix 9.2.
- 9.79 Despite its eroded / degraded condition the overall sensitivity of the baseline geological resources at this site are considered to be high, given that these deposits have been recorded across the main development area, although at variable thicknesses.

Hydrogeology

- 9.80 The groundwater body beneath the site is indicated by SEPA to comprise part of the Oban and Kintyre groundwater body. This groundwater body was classified by SEPA in 2023 as having an overall status of good.
- 9.81 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.
- 9.82 Peat and peaty soils would be expected to contain perched groundwater but would also be expected to inhibit groundwater flow. Till deposits, 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).
- 9.83 Groundwater vulnerability mapping indicates that most of the site is classified as Class 4a with some localised areas situated in the far north-east and in central parts of the site classified as Class 5 where superficial deposits have not been mapped. Class 5 areas are those areas where groundwater is considered to be vulnerable to most pollutants whereas Class 4a 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.
- 9.84 Regional hydrogeology and vulnerability mapping for the site is shown on Figures 9.4 and 9.5.

Potential Groundwater Dependent Habitats

- 9.85 Several communities were assessed as being potentially dependent on groundwater across the survey area during National Vegetation Classification survey work undertaken at the site (see Chapter 7: Ecology and Figure 7.4 for further detail).
- 9.86 A summary of these habitats is provided for the main windfarm site and the access track routes in Table 9.6 and 9.7.

Table 9.6: Potentially Ground Water Dependent Habitats – Main Windfarm Site

UKHab Code and Title	National Vegetation Classification Code and Title
f2c (Upland flushes, fens and swamps)	M10 (<i>Carex dioica</i> - <i>Pinguicula vulgaris</i> mire)
h1b (Upland heathland)	M15b (<i>Scirpus cespitosus</i> - <i>Erica tetralix</i> wet heath, typical sub-community)
	M15c (<i>Scirpus cespitosus</i> - <i>Erica tetralix</i> wet heath, <i>Cladonia</i> spp. sub-community)
g3c8 (<i>Holcus-Juncus</i> neutral grassland)	M23a (<i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture, <i>Juncus acutiflorus</i> sub-community)
	M23b (<i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture, <i>Juncus effusus</i> sub-community)

UKHab Code and Title	National Vegetation Classification Code and Title
f2c (Upland flushes, fens and swamps)	M6c (<i>Carex echinata</i> - <i>Sphagnum recurvum/auriculatum</i> mire, <i>Juncus effusus</i> sub-community)
	M6d (<i>Carex echinata</i> - <i>Sphagnum recurvum/auriculatum</i> mire, <i>Juncus acutiflorus</i> sub-community)
g3c8 (<i>Holcus</i> - <i>Juncus</i> neutral grassland)	MG10a (<i>Holcus lanatus</i> - <i>Juncus effusus</i> rush-pasture, typical sub-community)
w1g (Other broadleaved woodland)	W4sc (<i>Betula pubescens</i> - <i>Molinia caerulea</i> woodland, <i>Sphagnum</i> spp. sub-community (<i>Sphagnum aurita</i> variant))

Table 9.7: Potentially Ground Water Dependent Habitats – Access Track Routes

UKHab Code and Title	National Vegetation Classification Code and Title
f1a (Blanket bog)	M15 (<i>Scirpus cespitosus</i> - <i>Erica tetralix</i> wet heath)
f2b (Purple moor-grass and rush pastures)	M23a, M23b, M25, W23 (Mosaic of <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture (including <i>Juncus acutiflorus</i> & <i>Juncus acutus</i> sub-communities), <i>Molinia caerulea</i> - <i>Potentilla erecta</i> mire, and <i>Ulex europaeus</i> - <i>Rubus fruticosus</i> scrub)
f2c (Upland flushes, fens and swamps)	M6 (<i>Carex echinata</i> - <i>Sphagnum recurvum/auriculatum</i> mire)
f2c (Upland flushes, fens and swamps)	M6a (<i>Carex echinata</i> - <i>Sphagnum recurvum/auriculatum</i> mire, <i>Carex echinata</i> sub-community)
g3c (Other neutral grassland)	M23b, W23 (<i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture - <i>Juncus acutiflorus</i> sub-community & <i>Ulex europaeus</i> - <i>Rubus fruticosus</i> scrub)
	MG10 (<i>Holcus lanatus</i> - <i>Juncus effusus</i> rush-pasture)
g3c8 (<i>Holcus</i> - <i>Juncus</i> neutral grassland)	M23 (<i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture)
	M23a (<i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture, <i>Juncus acutiflorus</i> sub-community)
	M23b (<i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture, <i>Juncus effusus</i> sub-community)
	MG10 (<i>Holcus lanatus</i> - <i>Juncus effusus</i> rush-pasture)
	MG10a (<i>Holcus lanatus</i> - <i>Juncus effusus</i> rush-pasture, typical sub-community)
	mod/M23a (UKHab g4 modified grassland/ <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture, <i>Juncus acutiflorus</i> sub-community)
h1b (Upland heathland)	M15 (<i>Scirpus cespitosus</i> - <i>Erica tetralix</i> wet heath)
M25/M23a mosaic (No UKHab)	M25/M23a (<i>Molinia caerulea</i> - <i>Potentilla erecta</i> mire & <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture, <i>Juncus acutiflorus</i> sub-community)
w1a (Upland oakwood)	W7 (<i>Alnus glutinosa</i> - <i>Fraxinus excelsior</i> - <i>Lysimachia nemorum</i> woodland)
w1b (Upland mixed ashwoods)	W7 (<i>Alnus glutinosa</i> - <i>Fraxinus excelsior</i> - <i>Lysimachia nemorum</i> woodland)

UKHab Code and Title	National Vegetation Classification Code and Title
w1g (Other broadleaved woodland)	W4 (<i>Betula pubescens</i> - <i>Molinia caerulea</i> woodland)

- 9.87 Reference to Figure 7.4 indicates that the northern bypass access track route and the proposed sections of new access track on the Blary Hill route cross through various areas of potential GWDTE along the majority of their length. It is noted that fewer areas of potential GWDTE are located within the main windfarm area and these appear to be primarily associated with the various surface water courses that are located within this part of the site.
- 9.88 A review of geology within the survey area indicates that the areas of potential GWDTE are predominantly underlain by diamicton till with some localised areas of alluvium and river terrace deposits situated in proximity to the Barr Water. Peat deposits have also been identified within the main windfarm development area in the east and in central parts of the survey area during peat survey works.

Habitats not on Peat

- 9.89 The majority of the potentially groundwater-dependent habitats that have been mapped are located in lowland areas situated in western and central parts of the survey area where peat has not been identified or is considered to be very sparse. In these areas, the nature of the underlying substrate requires assessment.
- 9.90 Based on the available information, these areas are indicated to be underlain by diamicton till. These deposits are likely to include cohesive materials such as clays and / or silts, which are likely to provide an impermeable barrier over the underlying bedrock and will likely prevent groundwater (in the bedrock) from reaching the surface. Any boggy or marshy areas encountered in these parts of the site are more likely to relate to the ponding of surface water collecting on the impermeable clay layer, leading to surface waterlogging.
- 9.91 No springs or seepage features have been identified within these parts of the study area or in their immediate surroundings. In addition, no springs are indicated on topographical mapping.
- 9.92 On this basis, it is considered that the habitats recorded in areas where peat has not been found to be present are unlikely to be groundwater dependent as no reliable source of groundwater on which they are able to depend is considered to be available. These areas are more likely to rely on a combination of rainfall and surface runoff, with some direct input from surface water in areas that are located adjacent to watercourses and other waterbodies.

Habitats on Peat

- 9.93 Water flow through peat does occur but is typically very slow with the exception of areas where peat pipes or conduits are present, which allow a more focused flow. Blanket peat,

such as is present in the area of the main windfarm site, is generally considered to be ombrotrophic and receives all of its nutrients from rainwater. Localised flushing can occur adjacent to watercourses but is rarely extensive away from the watercourse channel. It is recognised that the blanket peat present within the survey area has been modified as a result of drainage and grazing, but it remains likely that the dominant water source for these habitats is likely to be rainwater with shallow through-flow within the uppermost vegetated layer.

- 9.94 The bedrock underlying the site is also classed as a low productivity aquifer. As such, it is considered unlikely that groundwater within the bedrock is likely to be accessible to surface habitats.
- 9.95 It is also considered that the surface peat layers are likely to be underlain by Glacial Till deposits, which are likely to be formed of cohesive material such as clay or silt. This material would provide an impermeable barrier layer between the peat deposits and the bedrock, effectively preventing groundwater in the bedrock from reaching the ground surface.
- 9.96 No springs or seepage features have been identified within these parts of the study area or in their immediate surroundings. In addition, no springs are indicated on topographical mapping.
- 9.97 It is therefore concluded that the occurrence of potentially groundwater-dependent habitats in peat areas preclude them from being groundwater-dependent as no groundwater source is considered likely to be available to them.
- 9.98 Based on the above, it is considered that the GWDTEs that have been identified on-site are unlikely to be affected by the proposed development. As such, GWDTEs are not considered further within this chapter.

Private Water Supplies

- 9.99 Argyll and Bute Council were consulted about the presence of Private Water Supplies (PWS) located in the vicinity of the proposed turbines and associated infrastructure. Records for one PWS located within 2.0km of the site have been provided.

Table 9.8: Summary of PWS Located in the Vicinity of the Site

Reference	Site Name	Class	Source Co-ordinates	Source Type
AABMK0038	Arnicle Farm, North Cottage and the Bungalow (3 Properties)	B	171031, 638467	Spring

- 9.100 This PWS is shown to be located approximately 2.4km north-west of the nearest proposed infrastructure within the main windfarm development area (T1). Given its distance from the main windfarm development area and the presence of the Barr Water between it, it is considered that this PWS abstraction is unlikely to be impacted by development works within the main windfarm development area. The PWS is also noted to be located approximately 900m from the route of the proposed northern bypass at its closest point. Again, given its distance from this development feature it is considered that the PWS will unlikely be impacted by access track construction, should this route be taken forward.

- 9.101 The applicant also provided information in relation to an additional unrecorded PWS that is located at a property called An Acaill, which is situated adjacent to the existing Barr Glen Road and at the western extent of the proposed Blary Hill access route (approximately 3.25km from the main windfarm development area). It is understood that this comprises an abstraction borehole that has been installed within the underlying Dalriadan bedrock strata. It is considered that significant works will not be required to be undertaken in the vicinity of this PWS given that it is situated in proximity to existing road infrastructure rather than an area where new access track will require to be constructed. As such, it is considered that this PWS will unlikely be impacted, should this route be taken forward.
- 9.102 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 2km 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.
- 9.103 A map highlighting the location of the PWS record described above are presented on Figure 9.7.
- 9.104 An assessment of effects on PWS is not considered further within this chapter.

Summary of Groundwater Sensitivity

- 9.105 Taking account of the low productivity aquifer underlying the site, the generally low permeability superficial deposits, the location of potential GWDEs and the absence of PWS in the study area, the sensitivity of baseline hydrogeological resources beneath this site is considered to be low.

Watercourses

- 9.106 As shown on Figure 9.6, the main windfarm development area is drained by three named watercourses, all of which flow in a westerly direction towards the Abhainn a' Chnocain watercourse, which flows along the western boundary of the main windfarm development area. Of the three named watercourses, Allt a' Bhlaire is situated in the northern part of the site, Allt Domhain is situated in the central part of the site and Allt an Tuirc is located in the southern part of the site. The Abhainn a' Chnocain watercourse flows in a northerly direction and discharges into the Barr Water approximately 500m north of the main windfarm development area boundary at its closest point.
- 9.107 The Barr Water flows away from the main windfarm development area in a westerly direction where it ultimately discharges into the Sound of Gigha. The Barr Water passes through the central part of the development area and will require to be crossed by the northern bypass access track if taken forward.
- 9.108 The Alltan Fraoich and Allt an Uamha watercourses are noted to be located in the western part of the development area and will require to be crossed by the northern bypass access track along with a number of other unnamed tributaries of the Barr Water in this part of the site.

- 9.109 Both the Abhainn a' Chnocain watercourse and the Barr Water were classified by SEPA in 2023 as being in Good condition.
- 9.110 For the purposes of this assessment and taking account of the Good status of the local watercourses, the sensitivity of baseline hydrological resources at this site is considered to be medium.
- 9.111 The hydrological features described above are highlighted on Figure 9.6.

Water Crossings

- 9.112 The road and tracks providing access to the turbines and other infrastructure will require to cross watercourses at a number of locations. In total, four new water crossings will be required within the main windfarm development area. A total of eight new water crossings will require to be constructed and five existing watercourse crossing will require to be upgraded for the proposed Blary Hill access route, while a total of eighteen new water crossings (including a bridge structure across the Barr Water) will require to be constructed for the proposed northern bypass access route. The proposed new and upgraded crossings are briefly outlined below, with further details provided in the outline water crossing schedule, Technical Appendix 9.1.

Main Windfarm Development Area

- NWC1 is a new crossing of the Allt a'Bhlair watercourse on the access track between T1 and T3 in the northern part of the site. An oversized bottomless arched culvert watercourse crossing will be formed at this new track crossing point.
- NWC2 is a new crossing of the Allt Domhain watercourse on the access track between T7 and T9 in the eastern part of the site. An oversized bottomless arched culvert watercourse crossing will be formed at this new track crossing point.
- NWC3 is a new crossing of the Allt an Tuirc watercourse on the access track between T8 and T9 in the south eastern part of the site. An oversized bottomless arched culvert watercourse crossing will be formed at this new track crossing point.
- NWC4 is a new crossing of the Allt a'Bhlair watercourse on the access track between T4 and T2 in the north eastern part of the site. An oversized bottomless arched culvert watercourse crossing will be formed at this new track crossing point.

Blary Hill Access Route

- EWC1 to EWC5 are existing crossings of a number of unnamed tributaries of the Barr Water and the Barr Water itself that were constructed as part of the access track network for the adjacent Blary Hill Windfarm, which is situated to the south of the main windfarm development area. An inspection of these crossings could not be undertaken due to access issues however, it is considered that new oversized bottomless arched culvert watercourse crossings will be formed at these track crossing points, if required.

Northern Bypass Access Route

- NWC5 is a new crossing of the Alltan Fraoich watercourse on the main northern bypass access track in the western part of the site. An oversized bottomless arched culvert watercourse crossing will be formed at this new track crossing point.
- NWC6 is a new crossing of the Alltan an Uamha watercourse on the main northern bypass access track in the northern part of the site. An oversized bottomless arched culvert watercourse crossing will be formed at this new track crossing point.
- NWC7 is a new crossing of an unnamed tributary of the Barr Water on the main northern bypass access track in the northern part of the site. An oversized bottomless arched culvert watercourse crossing will be formed at this new track crossing point.
- NWC8 and NWC9 are new crossings of an unnamed tributary of the Barr Water on the main northern bypass access track in the northern part of the site. Oversized bottomless arched culvert watercourse crossings will be formed at these new track crossing points.
- NWC10, NWC11 and NWC12 are new crossings of an unnamed tributary of the Barr Water on the main northern bypass access track in the central part of the site. Oversized bottomless arched culvert watercourse crossings will be formed at these new track crossing points.
- NWC13 is a new of the Barr Water on the main northern bypass access track in the central part of the site. A single span, modular panel bridge is proposed to be constructed at this new track crossing point.

Main Access Route

- NWC14 is a new crossing of an unnamed tributary of the Barr Water on the main access track in the eastern part of the site. An oversized bottomless arched culvert watercourse crossing will be formed at this new track crossing point.
- NWC15 – NWC21 are new crossings of various unnamed tributaries of the Abhainn a' Chnocain watercourse on the main access track in the eastern part of the site. Oversized bottomless arched culvert watercourse crossings will be formed at these new track crossing points.
- NWC22 is a new crossing of an unnamed tributary of the the Abhainn a' Chnocain watercourse on the main access track in the eastern part of the site. An oversized bottomless arched culvert watercourse crossing will be formed at this new track crossing point.

9.113 The locations of the existing and proposed water crossings are shown in Figure 1 within Technical Appendix 9.3 Water Course Crossing Schedule.

Flooding

9.114 Online SEPA future flood mapping illustrates the areas where there is a 0.1% or greater probability of being flooded in any given year from rivers, surface water / small watercourses and coastal sources.

9.115 This map indicates that areas of fluvial flood risk (i.e. flooding from rivers) are confined to areas in the immediate vicinity of the Abhainn a' Chnocain watercourse, which flows along the western extent and below the main windfarm development area and in areas

along the Barr Water, which will require to be crossed as part of the northern bypass access track option in the central part of the development area, should this be taken forward.

- 9.116 The map also identifies localised areas that are considered to be at risk of surface water flooding. All of these appear to be confined to the smaller surface water features / tributaries of the Barr Water and Abhainn a' Chnocain that are located on site.
- 9.117 With the only flood risks being associated adjacent to areas in the vicinity of the onsite watercourses that have been identified, which are, in the main, 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.
- 9.118 It is acknowledged that if the northern access route is taken forward as part of the proposed development design, there may be a higher risk of flooding, specifically at the location of the proposed bridge crossing over the Barr Water, however mitigation measures in the form of detailed flood risk assessment, will be put in place to reduce this risk. Further details are provided in paragraph 9.179.

Contaminated Land

- 9.119 Historically, the main windfarm development site is shown to have largely comprised undeveloped moorland and farmland, with historical maps dating from the mid-1800s to 1955 indicating no development to have taken place.
- 9.120 Arnicle Farm is shown to be present to the north of the development boundary on the earliest map editions and remains an active farm in the present day. Land associated with this farm is noted to be present within the development boundary. As such, there is the potential for contaminants associated with current and historical farming practises to be present although the risks from this are considered to be negligible.
- 9.121 No further potential sources of contamination are shown to be present on-site on the available historical maps.
- 9.122 With no potentially significant contamination sources identified within the main body of the site, contaminated land will not be considered further within this assessment.

9.6 Identification and Evaluation of Key Effects

- 9.123 The potential effects resulting from the proposed development (identified by Section 9.5 Baseline Conditions) are detailed below. Effects have been separated into those which occur during the construction, operation (including maintenance), and decommissioning phases individually.

Construction Effects

- 9.124 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 geology, hydrology, and hydrogeology during this phase.

Pollution Impact from Sediment Run-off / Transport and / or Chemical Contaminated Run-off

- 9.125 Surface run-off containing silt and other sediments, particularly during and after rainfall events, has the potential to enter the watercourses and drains 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.
- 9.126 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.
- 9.127 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.
- 9.128 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, which is considered to be significant in EIA terms.

Changes to Groundwater Flow

- 9.129 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 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.
- 9.130 Excavations will be required to form turbine foundations. Shallower excavations will be required to form platforms for the substation and the temporary construction compound and the span bridge if the northern bypass route is taken forward. However, given the anticipated absence of substantial groundwater within the superficial deposits, any changes to groundwater flow would be highly localised.
- 9.131 There is therefore a potential low magnitude impact on a low sensitivity receptor, resulting in a direct, temporary, short-term effect of **negligible adverse** significance in the absence of mitigation, which is considered to be insignificant in EIA terms.

Removal of and Impact on Peat

- 9.132 Variable thicknesses of peat have been identified across the site. The condition of the peat that is present on site is considered to be heavily degraded, which is primarily a result of the level of artificial drainage that is present on site and extensive grazing from livestock.
- 9.133 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:

- Four of the nine turbines are sited on 'peaty soil' rather than peat, i.e. peat depth less than 0.5 m thick.
- Three of the nine turbines 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 two (T2 and T6) of the nine turbines are sited on peat recorded at depths slightly greater than 1.0m (1.2m and 1.5m respectively) constituting deep peat. The shallower peat to the south of T2 is constrained by a watercourse buffer while the location of T6 is constrained by wake restrictions (requiring it to be moved eastwards from its original location communicated to SEPA in October 2024). Following detailed pre-construction site investigations, there may be an opportunity to micro-site the turbines in order to reduce the volume of peat requiring excavation.
- All other infrastructure elements (construction compound, substation) 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 in the eastern and southern areas of the site. The requirement for peat excavation at these locations will be minimised, via the construction of 2.01km of floating road as communicated to SEPA during October 2024 and May 2025 calls.

9.134 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 9.2.

9.135 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

9.136 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 9.3. This has identified low peat landslide risk at all proposed turbine, hardstanding, and other infrastructure locations.

9.137 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).

9.138 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 medium sensitivity receptor, resulting in a direct, temporary, short-term effect of **minor adverse** significance which is considered to be insignificant in EIA terms.

Impact on the Integrity of Banking

- 9.139 Construction activities on or close to the sides of watercourses can detrimentally affect the structural integrity of burn / river 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. There may also be an increased flood risk if water flows are modified as part of these works.
- 9.140 Permanent new watercourse crossings will be required to be constructed to facilitate development of the site. In total, four new water crossings will be required within the main windfarm development area. A total of eight new water crossings will require to be constructed and five existing watercourse crossings will require to be upgraded for the proposed Blary Hill access route, while a total of eighteen new water crossings (including a bridge structure across the Barr Water) will require to be constructed for the proposed northern bypass access route.
- 9.141 Subject to detailed pre-construction site investigation works, it is anticipated that all but one of these new and upgraded crossings will comprise installation of oversized bottomless arched culverts. A single span, modular panel bridge is proposed to be constructed over the Barr Water as part of the northern bypass access route.
- 9.142 Further details are provided in EIAR Volume 4, Appendix 9.1 Outline Watercourse Crossing Schedule whilst EIAR Volume 2, Figure 3.5 depicts a typical watercourse crossing and Figure 3.12 depicts the proposed span bridge for the Barr Water.
- 9.143 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 which is considered to be significant in EIA terms.

Direct Discharge of Untreated Foul Drainage

- 9.144 Unless appropriately sited and managed, there is potential for direct discharge of untreated foul sewage from welfare facilities from site compounds during construction.
- 9.145 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 which is considered to be significant in EIA terms.

Operational Effects

Pollution Impact from Sediment Run-off / Transport and / or Chemical Contaminated Run-off

- 9.146 During maintenance works, surface run-off containing silt and other sediments, particularly during and after rainfall events, has the potential to enter the watercourses and drains 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.

- 9.147 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.
- 9.148 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.
- 9.149 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, which is considered to be significant in EIA terms.

Fluvial Geomorphology

- 9.150 If watercourse crossings / bridges are not designed properly to ensure continuous flows, this could potentially adversely affect the geomorphology of the streams by reducing heterogeneity.
- 9.151 The magnitude of change, prior to mitigation, is high on a medium sensitivity receptor. Therefore, there is potential for a direct, permanent effect of **major adverse** significance prior to the implementation of mitigation measures which is considered to be significant in EIA terms.

Decommissioning Effects

- 9.152 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.
- 9.153 Discussions will be held with The Argyll and Bute Council and the appropriate Regulatory Authorities prior to decommissioning to agree an appropriate Decommissioning Strategy.

9.7 Mitigation Measures and Monitoring

Project Design

- 9.154 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):
- Maintaining a 50m buffer around all surface watercourses, except where watercourse crossings are required;
 - Avoiding the placement of turbines and other infrastructure in peat greater than 1m in depth, subject to the presence of other constraining factors; and

- Avoidance of high-quality peatland, if any that may have been identified within the NVC and Peatland Condition Assessment presented in Technical Appendix 7.1.

- 9.155 Rigorous construction environmental management procedures will be implemented in line with a post-consent Construction Environmental Management Plan (CEMP) to ensure appropriate protection of the above-noted watercourses, and all other surface water receptors.
- 9.156 Areas of deep peat have been avoided in the siting of all except two turbines / hardstanding areas (T2 and T6). Shallower peat to the south of T2 is constrained by a watercourse buffer while the location of T6 is constrained by wake restrictions (requiring it to be moved eastwards from its original location communicated to SEPA in October 2024). Owing to topography and site navigability for abnormal loads, the proposed layout offers the best practical fit in terms of a buildable layout where manufacturers requirements can be met. This also represents the maximum possible energy production on the site.
- 9.157 Some sections of new access track situated in the southern and eastern parts of the main windfarm development area are also proposed to be sited in areas where peat has been recorded at thicknesses in excess of 1.0m, although care has been made to avoid the thickest peat deposits. It is proposed that floated access tracks will be placed where peat exceeds 1.0m in depth.
- 9.158 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.
- 9.159 Two proposed access routes leading to the main windfarm development area have been included within the design (Blary Hill route and the Northern Bypass route). Only one of these potential route options will be taken forward within the final development design. Should the northern bypass access route be taken forward, a bridge crossing over the Barr Water will be required. At this stage it is proposed that a single span modular bridge is constructed to minimise direct impact to the river channel. Further detailed ground investigation, topographical surveys and detailed flood risk assessment for the area of the proposed crossing will be undertaken. The information obtained from these surveys will be used to prepare a detailed feasibility assessment to determine a final bridge design solution that will minimise impact to the environment.

Pre-Construction Site Investigations

- 9.160 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 (including the proposed bridge structure across the Barr Water if the northern bypass access route is taken forward) 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.

- 9.161 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.

Construction

Peat

- 9.162 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.
- 9.163 If it is not possible to avoid routing tracks over localised areas of deep peat, as is the case for stretches of track that are proposed to be constructed in southern and eastern parts of the site, these would be floated to avoid the requirement for excavation of peat. This would involve the 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.
- 9.164 Any peat excavated will be re-used on site as set out in the Outline Peat Management Plan (EIA Volume 4, Technical Appendix 9.2).

Water Quality

- 9.165 The appointed Contractor will undertake pre-construction baseline water quality sampling and analysis of the principal surface water receptors (likely to be the Barr Water and the Abhainn a' Chnocain watercourse). 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 or controlled by separate condition.

Pollution Impact from Sediment Run-off / Transport and / or Chemical Contaminated Run-off

- 9.166 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;
 - Monitoring of water quality within all water environment receptors that may be affected by the works (as per 9.149 above);

- 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.

- 9.167 All earthmoving works or similar operations will be carried out in accordance with BSI Code of Practice for Earth Works BS6031:1981.
- 9.168 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.
- 9.169 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.
- 9.170 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.
- 9.171 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.
- 9.172 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.
- 9.173 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.
- 9.174 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 30 m of watercourses and water bodies.

- 9.175 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.
- 9.176 Where topography dictates that working platforms are needed, these will be formed to ensure that surface water drains away from watercourses.
- 9.177 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

- 9.178 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.
- 9.179 If the northern bypass access route is taken forward a bridge structure across the Barr Water will be required. At this stage a single span bridge is proposed to be constructed, which will avoid the requirement for working directly in the water channel. Construction works for the bridge foundations will be undertaken at positions away from the banking edge to minimise any impact to its integrity and outwith the extent of any flood zones. This will allow uninterrupted water flow in the river and mitigate against an increased risk of flooding.
- 9.180 Water crossing designs will follow best practice to prevent impact on the integrity of the banking of watercourses and mitigate against increased downstream flood risk. Detailed design will be included within a Construction Method Statement to be agreed with Argyll and Bute Council and SEPA and detailed watercourse crossing designs will be regulated under the CAR licensing regime.

Direct Discharge of Untreated Foul Drainage

- 9.181 Welfare facilities will either connect directly to self-contained storage tanks or to a septic tank, subject to approval from SEPA.
- 9.182 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

Pollution Impact from Sediment Run-off / Transport and / or Chemical Contaminated Run-off

- 9.183 The proposed track and hardstanding design principles for the Proposed Development are presented in Chapter 3: Project Description.
- 9.184 Prior to construction, a detailed Drainage Strategy (DS) will be developed and agreed with SEPA and Argyll and Bute 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

- 9.185 The detailed design for the watercourse crossings (and bridge, if required), 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

- 9.186 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. An appropriate Decommissioning Strategy will also be agreed with Argyll and Bute Council and other appropriate Regulatory Authorities prior to commencing any decommissioning works to ensure potential risks to the wider environment are mitigated during these works.

9.8 Residual Effects

Construction

Pollution Impact from Sediment Run-off / Transport and / or Chemical Contaminated Run-off

- 9.187 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 **negligible adverse** effect and not significant in EIA terms.

Changes to Groundwater Flow

- 9.188 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** adverse effect and not significant in EIA terms.

Removal of and Impact on Peat

- 9.189 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 negligible, resulting in a direct, permanent residual **minor adverse** effect and not significant in EIA terms.

Peat Landslide Impact on Watercourses

- 9.190 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

- 9.191 The committed mitigation measures, including appropriate bridge and water crossing designs regulated by CAR and agreed with SEPA and Argyll and Bute 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 **negligible adverse** effect and not significant in EIA terms.

Direct Discharge of Untreated Foul Drainage

- 9.192 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 **negligible adverse** effect and not significant in EIA terms.

Operation

Pollution Impact from Sediment Run-off / Transport and / or Chemical Contaminated Run-off

- 9.193 The committed mitigation measures, including implementing a suitable detailed Drainage Strategy in agreement with SEPA and Argyll and Bute Council, are considered to reduce the magnitude of impact from high to negligible, resulting in a direct, long-term effect of **negligible adverse** significance and not significant in EIA terms.

Fluvial Geomorphology

- 9.194 The committed mitigation measures, including appropriate bridge and water crossing designs regulated by CAR and agreed with SEPA and Argyll and Bute Council, are considered to reduce the magnitude of impact from medium to negligible, resulting in a direct, permanent residual effect of **negligible adverse** significance and not significant in EIA terms.

Decommissioning

- 9.195 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. An appropriate Decommissioning Strategy will also be agreed with Argyll and Bute Council and other appropriate Regulatory Authorities prior to commencing any decommissioning works to ensure potential risks to the wider environment are mitigated during these works.

8.9 Cumulative Effects

- 9.196 This assessment has concluded that there will be no significant effects on geological and peat 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.
- 9.197 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.

8.10 Summary

- 9.198 The main windfarm development area is drained by three watercourses. Allt a' Bhlairst in the north, Allt Domhain in the centre and Allt an Tuirc in the south. Each flow in a westerly direction towards the Abhainn a' Chnocain watercourse, which flows along the western boundary of the main windfarm development area. The Abhainn a' Chnocain flows to the north and discharges into the Barr Water. The Barr Water flows away from the main windfarm development area in a westerly direction where it ultimately discharges into the Sound of Gigha. The Barr Water passes through the central part of the development area. The Alltan Fraoich and Allt an Uamha watercourses along with a number of other unnamed tributaries of the Barr Water are noted to be located in the western part of the development area.
- 9.199 Both the Abhainn a' Chnocain watercourse and the Barr Water were classified by SEPA in 2023 as being in Good condition.
- 9.200 The rock beneath the main windfarm development area and the eastern extent of the main access track route comprise metamorphic rock of the Beinn Bheula Schist Formation. Central parts of both access track routes are shown to be underlain by metamorphic bedrock of the Green Beds Formation, with bands of the Glen Sluan Schist Formation and the Loch Tay Limestone Formation also noted. The eastern extent of both access track routes are underlain by metamorphic bedrock of the Ben Lui Schist Formation. The bedrock is classified as a low productivity aquifer.
- 9.201 Superficial deposits across the development site area are shown to largely comprise Till. Localised areas of Alluvium and River Terrace Deposits are shown to be present in the vicinity of the Barr Water in central parts of the development site. Localised areas in the far north eastern part of the main windfarm development area and in the central part of the site are also shown to have little or no superficial material over bedrock.
- 9.202 Detailed peat surveys identified variable thicknesses of peat across the site, with deep peat (>1.0m) generally limited to southern and eastern areas of the site. A maximum recorded peat depth of 3.29m was recorded in the eastern part of the site. Peat encountered across the site during various peat depth surveys was noted to be heavily

degraded, primarily as a result of the presence of artificial drainage and extensive grazing by livestock (sheep).

- 9.203 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 / hardstanding areas. Proposed new track sections are generally sited on areas where peat depth is less than 1.0 m. Thicker peat deposits have been identified in the southern and eastern parts of the site, although care has been taken to avoid areas of deeper peat in these areas. The requirement for peat excavation at these locations will be minimised, via the construction of floating road, where required.
- 9.204 A peat slide risk assessment has identified low risks at all turbine and other infrastructure locations.
- 9.205 Potential construction and operational effects include effects on pollution from sediment run-off and/or chemical contaminated run-off, excavation of peat and peat slide risk, the integrity of watercourse banking and the risk of pollution of watercourses from foul drainage.
- 9.206 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** in EIA terms. Potential effects, mitigation measures and residual effects are summarised in Tables 9.9 and 9.10.

Table 9.9: 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.	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 including downstream flood risk	Major	Adverse	Suitable bridge and water crossing design, regulated by CAR. CEMP and construction site management.	Negligible	Adverse

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial / Adverse		Significance	Beneficial / 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.	Negligible	Adverse

Table 9.10: Operation 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 including downstream flood risk	Major	Adverse	50 m buffer around watercourses wherever possible. 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 bridge and water crossings to maintain continuous flows.	Negligible	Adverse
Alteration to fluvial geomorphology	Major	Adverse	Appropriately designed drainage and bridge / watercourse crossings.	Negligible	Adverse

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Allt Domhain Wind Farm

Environmental Impact Assessment Report Volume 1 Chapter 10: Cultural Heritage

June 2025

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10 CULTURAL HERITAGE

Introduction

- 10.1 This chapter reports the outcome of the assessment of likely significant environmental effects arising from the Allt Domhain Wind Farm (the proposed development) upon cultural heritage. This chapter (and its associated figures and appendices) is not intended to be read as a standalone assessment and reference should be made to the introductory chapters of this Environmental Impact Assessment (EIA) Report.
- 10.2 Cultural heritage comprises a diverse range of elements that are referred to throughout the EIA Report 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 historic 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 historic buildings, and earthworks.
- 10.3 The specific objectives of this chapter are to:
- Describe the assessment methodology and significance criteria used in the assessment;
 - Describe the cultural heritage baseline;
 - Assess the potential effects, 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.
- 10.4 This chapter is also supported by the following figures as contained within Volume 2: Figures and Volume 3: Visualisations:
- Figure 10.1: Designated heritage assets and Zone of Theoretical Visibility (Blade Tip)
 - Figure 10.2: Proposed development layout and non-designated heritage records
 - Figure 10.3: Photomontage Visualisation from Blary, Dun, ENE of (SM3077/A1)
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10.5 The chapter is supported by a Technical Appendix (as set out within Volume 4: Technical Appendices), comprising:

- Technical Appendix 10.1: Cultural Heritage Background and Gazetteer.

10.6 Other relevant chapters include Chapter 6: Landscape and Visual Impact Assessment and Chapter 13: Socio-economics and Tourism.

10.7 Competent experts Craig Stewart, David Astbury and Joshua Walls prepared this chapter. Craig Stewart is a Consultant in WSP's Cultural Heritage team, with 8 years' experience in heritage consultancy. David Astbury is a Senior Consultant in WSP's Cultural Heritage team, with 15 years' experience in the cultural heritage sector. Joshua Walls is an Assistant Consultant in WSP's Cultural Heritage team with five years' experience in the cultural heritage sector. Craig Stewart and David Astbury hold membership of the Chartered Institute for Archaeologists (CIfA): Craig Stewart at Practitioner grade (PCIfA) and David Astbury at Associate grade (ACIfA).

Legislation, Policy and Guidance

Legislation

10.8 Certain heritage assets that are deemed to be of particular importance are given legal protection. The importance of heritage assets and the protection of these and their settings is recognised in legislation as well as national, regional, and local planning policy. The following legislation is relevant to the assessment of the effects on Cultural Heritage receptors:

- Paragraph 3(2) of Schedule 9 of the Electricity Act 1989 requires the Scottish Ministers, in considering any relevant proposals for which their consent is required under Section 36 of the Act, to have regard to the desirability of protecting sites, buildings and objects of architectural, historical, or archaeological interest. Where the person who formulated the proposals is a licence holder, the duty under paragraph 3(1)(b) requires that person who formulated the proposals to do what they reasonably can to mitigate any effect that the proposals would have on any such sites, buildings, or objects.
- The Ancient Monuments and Archaeological Areas Act 1979 (AMAAA) provides for a schedule of monuments which are protected and sets out measures for their protection and management. Provisions of the AMAAA are amended by the Historic Environment Scotland Act 2014.
- The Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997 (the 1997 Act) provides for the definition and protection of a list of buildings and areas of architectural and historical interest and sets out the requirement to have special

regard to the desirability of preserving the buildings or their settings in considering development proposals.

- Historic Environment (Scotland) Act 2014, which further amended provisions of the above Acts and established Historic Environment Scotland.

Policy

- 10.9 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 Argyll and Bute Local Development Plan (LDP), relevant aspects of NPF4 (National Planning Framework 4)(2023), Planning Advice Notes and other relevant guidance.
- 10.10 Planning Policy issues relating to Cultural Heritage are set out in Table 10.1, below.

Table 10.1 Planning Policy Issues relevant to Cultural Heritage

Policy Reference	Policy Issue
National Planning Policies	
NPF4: Policy 11 (Energy)	Policy 11 (e) identifies a number of considerations which are likely to be relevant when determining proposed energy infrastructure developments, including “vii. impacts on the historic environment”.
NPF4: Policy 7 (Historic assets and places)	Protection and enhancement of the historic environment forms part of the Scottish Government's national spatial strategy set out on page 7 of NPF4. The policy intent for Policy 7 is to “protect and enhance historic environment assets and places, and to enable positive change as a catalyst for the regeneration of places.” In relation to listed buildings, Policy 7(c) states that “Development proposals for the reuse, alteration or extension of a listed building will only be supported where they will preserve its character, special architectural or historic interest and setting. Development proposals affecting the setting of a listed building should preserve its character, and its special architectural or historic interest.” In relation to scheduled monuments, Policy 7(h) states “Development proposals affecting scheduled monuments will only be supported where: - direct impacts on the scheduled monument are avoided; - significant adverse impacts on the integrity of the setting of a scheduled monument are avoided; or - 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.” In relation to gardens and designed landscapes, Policy 7(i) states that “Development proposals affecting nationally important Gardens and Designed Landscapes will be supported where they protect, preserve or enhance their cultural significance, character and integrity and where proposals will not significantly impact on important views to, from and within the site, or its setting”.

Policy Reference	Policy Issue
	In relation to non-designated heritage assets, Policy 7(o) states that “non-designated historic environment assets, places and their setting should be protected and preserved in situ wherever feasible. Where there is potential for non-designated buried archaeological remains to exist below a site, developers will provide an evaluation of the archaeological resource at an early stage so that planning authorities can assess impacts. Historic buildings may also have archaeological significance which is not understood and may require assessment”. Policy 7 (o) also states “Where impacts cannot be avoided, they should be minimised. Where it has been demonstrated that avoidance or retention is not possible, excavation, recording, analysis, archiving, publication, and activities to provide public benefit may be required through the use of conditions or legal/planning obligations. [...]”.
PAN 2/2011 Planning and Archaeology (July 2011)	This document provides advice to planning authorities and developers on dealing with archaeological remains.
Historic Environment Policy for Scotland (HEPS)	The document is designed to support and enable good decision-making about changes to the historic environment. HEPS sets out a series of principles and policies for the recognition, care, and sustainable management of the historic environment.
Argyll and Bute Local Development Plan 2 (LDP2) 2024	Policy 15 – Supporting the Protection, Conservation and Enhancement of Our Historic Built Environment states that development proposals will not be acceptable where they fail to protect, preserve, conserve or enhance the historic built environment and avoid any cumulative effect upon designated built environment sites. Policy 16 – Listed Buildings states that development affecting a listed building, its curtilage or wider setting will only be supported either where it respects the original structure in terms of setting, scale, design, materials and proposed use or the proposal is essential to securing an appropriate use of the Listed Building without undermining its architectural or historic character, or its setting. In either case, the development proposal will also need to conform to national policy and guidance. Policy 17 – Conservation Areas states a presumption against development that does not preserve or enhance the character or appearance of an existing or proposed conservation area or its setting. Policy 19 – Scheduled Monuments states a presumption against development that does not retain, protect, conserve or enhance a Scheduled Monument or the integrity of its settings. Policy 20 – Gardens and Designed Landscapes states that development proposals will be supported where they protect, preserve or enhance their cultural significance, character and integrity and where proposals will not significantly impact upon important views to, from and within the site, or its setting.

Guidance

- 10.11 Planning authorities are directed to the HEPS, Historic Environment Circular 1, Planning Advice Note (PAN) 2/2011 and Historic Environment Scotland (HES)'s Managing Change in the Historic Environment guidance note series in their consideration of planning applications affecting the historic environment. The most relevant of the Managing Change series are Managing Change in The Historic Environment: Setting (2019) and Managing Change in The Historic Environment: Gardens and Designed Landscapes (2019).
- 10.12 The assessment of cultural heritage has followed the guidance above and was undertaken in accordance with guidance published by the Chartered Institute for Archaeologists (CIfA), specifically the standard and guidance for historic environment desk-based assessment (CIfA, 2020).

Consultation

- 10.13 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.
- 10.14 The Scoping Opinion for the proposed development, then named Arnicle wind farm, was received from ECU on 10th June 2021
- 10.15 Consultation relevant to the Cultural Heritage assessment was undertaken with Historic Environment Scotland (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 10.2.

Table 10.2: Consultation Responses

Consultee	Date Received	Consultation Response	Where and how is this addressed?
HES	25/09/24	Based on an earlier 10 turbine layout HES were supportive of the list of assets presented for the assessment and encouraged consideration both of assets on the west coast of Arran and inward views of certain assets. Non-designated hut circles at Kilmaluag were identified in relation to the scheduled dun at Blary. 360 degree photomontages inclusive of cumulative turbine locations were requested for Garvalt, Blary and the	The initial list of heritage assets presented formed the focus of the site and receptor visit carried out in March 2025. The loss of blade tip visibility from two identified potential receptors has resulted in their removal from the scope of this assessment. Photography was obtained for photomontages in the locations requested and assets on Arran were considered but not taken forward for assessment, owing to distance and visual separation. In-

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		Kilmaluag hut circles using planar projections. The inclusion of wind farms at the scoping stage was requested, HES suggested the southern proposed access option would be the most preferable of the three presented. In relation to initial effects assessments of duns at Blary and Garvalt, HES did not agree that the impact would be low but also did not indicate if the impact would be objectionable.	scoping wind farms have been included for cumulative effects assessment.
HES	14/04/25	A response from Jessica Malone at HES to the design freeze layout and ZTV noted that HES welcome the proposed photomontages (noted above) and suggested it would be helpful if these were both planar and cylindrical projections. Further, the response noted HES looked forward to reviewing visualisations at the following stage in respect of the amended layout.	Photomontages from the relevant assets have been prepared in conjunction with this chapter and issued with the EIA.
HES	28/05/25	Acknowledgement of change to the Site boundary in light of revised access route	Assessment of effects through disturbance in section 10.33-10.35, proposed mitigation approach in 10.84, residual effects in table 10.6.

Assessment Methodology and Significance

Scope of Assessment

Effects Assessed in Full

10.16 The following effects were considered to be potentially significant in relation to [insert technical topic] at the scoping stage and have been assessed in full within this chapter:

- Effects by disturbance on heretofore unrecorded archaeological remains within the Site boundary.
- Effects to the setting of the following Scheduled Monuments:

- Blary, Dun, ENE of (SM3077/A1)
- Garvalt, dun 500m SW of (SM3740/A2)
- Carradale, fort, Kilbrennan Sound (SM2180/A3)
- Dun Sheallaidh, dun (SM3280/A11)
- Puball Burn, enclosure 580m SE of Skeroblingarry (SM3642/A20)
- Crois Mhic Aoidh, standing stone (SM251/A27)
- Barlea, Standing Stone & cairn (SM178/A30)
- Skeroblin Hill, cairn (SM3108/A33)
- An Dunan, dun, WSW of Auchadaduie (SM3111/A34)
- Effects to the setting of the following designed landscape:
 - Achamore House designed landscape (GDL00005/A80)

Effects Scoped Out

- 10.17 The pre-application engagement with HES comprised the production of a technical note setting out an initial post-scoping overview of receptors potentially subject to significant effects resulting from the proposed development. The note, produced and circulated on 25 September 2024, noted the receptors listed above (para. 10.17), in addition to two scheduled monuments at Low Clachaig (SM4352/A17) and Airds Castle (SM3177/A43). Following agreement of the design freeze and associated ZTV issued in January 2025, the above list was reviewed against the ZTV and wireframe visualisations produced based on the centrepieces of each asset. The centre points of the Low Clachaig (SM4352/A17) and Airds Castle (SM3177/A43) scheduled monuments are not located in areas with any potential turbine visibility in outward views. As such, the decision has been made to scope out further assessment of these monuments.

Cumulative Effects

- 10.18 There are eleven operational, consented, in-scoping or in-application wind energy developments in the area within 10km around the proposed development, rising to fifteen operational, consented, in-application or scoping wind energy developments between 10 and 30km around the Site. The Site would be located c 1.2km west of the in-application West Torrisdale wind farm, 2.3km north-east of the in-application Cnoc Buidhe wind farm, 2.3km south of the consented Clachaig Glen wind farm, 5.6km south of the in-application Killeen wind farm, 6.6km north-east of the consented Tangy IV repower, and 4.7km south of the in-scoping Deucheran Hill 2 wind farm. The Site is bounded immediately by three operational wind farms: Beinn an Tuirc to the east, Beinn an Tuirc II to the south and Blary Hill to the west. In order to consider the effects of the proposed development when taken in combination with other wind energy developments, the cumulative baseline established for the Landscape and Visual Impact Assessment (Chapter 6) has been used.

Study Area

- 10.19 A study area of 10km ("the Study Area") from the proposed turbine positions in relation to potential receptors of effects through change to setting was established in consultation with Historic Environment Scotland (HES) and WoSAS (see Figure 10.2). This Study Area was

defined to allow relevant data to be collected in order to allow an assessment of the potential presence of archaeological remains within the Site. A search was made of the WoSAS Historic Environment Record (HER) and the HES spatial datasets of designated heritage assets in this area. Within this Study Area, WoSAS' Non-Statutory Records (NSR), comprising non-designated heritage assets that may qualify for national importance were included to a distance of 5km around the turbine positions in line with WoSAS' typical requirement of assessments.

Desk Based Study and Data Sources

- 10.20 The gathering of baseline data was carried out in accordance with the principles of Standard and guidance for historic environment desk-based assessments (Chartered Institute for Archaeologists [CIfA], 2020).
- 10.21 For the purpose of establishing the historic environment baseline, the following sources have been consulted:
- National and County-based registers of known archaeological and historical sites;
 - Cartographic and historic documents;
 - Aerial photographs;
 - Historic Landuse Assessment (HLA) mapping;
 - Published sources;
 - Internet sources; and
 - Previous archaeological assessments of the area.
 - These sources were obtained from the following organisations:
 - Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS) (National Monuments Record Scotland (NMRS), accessed via Canmore;
 - The West of Scotland Archaeology Service (WoSAS) Sites and Monuments Record (SMR);
 - Historic Environment Scotland (HES);
 - The National Archives of Scotland; and
 - National Library of Scotland Map Library

Field Survey

- 10.22 A series of visits were made to the Site and relevant designated heritage assets in the Study Area from 4th to 7th March 2025. Previously identified designated heritage assets were visited to assess the nature of their respective settings, with the Site visited to characterise present ground conditions, land-use, and likely impact on archaeological survival.

Assessment of Significance

Sensitivity

- 10.23 The levels of effect upon a heritage asset for either direct or indirect effects would largely depend upon its level of importance and the potential magnitude of change as a result

of the proposed development. Tables 10.3 and 10.4 respectively provide details on how the historic environment assessment would establish importance and magnitude of change, which would then inform the conclusion as to the level of effect upon the heritage asset based on a matrix approach set out in Table 10.5, this being tempered by professional judgement as necessary.

- 10.24 The rationale contained within Table 10.3 is predominantly based on information provided within the NPF4 (Scottish Government, 2023) and the associated supporting documents PAN2/2011 Planning Advisory Note on Planning and Archaeology, further by HES guidance documents HES Policy Statement (HES, 2019) and the Historic Environment Circular 1 (HES, 2019b). Note that the categorisation of the relative importance of those heritage assets which are of less than national importance generally relies on professional judgement.

Table 10.3: Asset Importance Criteria

Importance	Definition and Examples
Very High	World Heritage Sites (including nominated sites); and Heritage assets of acknowledged international importance.
High	Listed Buildings (Category A and B); Battlefields included within the inventory; Marine Protected Areas; Gardens and Designed Landscapes; Conservation Areas containing nationally important buildings; Non-designated heritage assets of scheduled quality and importance; and Heritage assets of national importance.
Medium	Listed Buildings (Category C); Conservation Areas containing buildings that contribute significantly to its historic character; and Heritage assets of regional importance.
Low	Heritage assets of local importance; Heritage assets compromised by poor preservation and/or poor survival of contextual associations; and Buildings of modest quality in their fabric or historical association. Scheduled Monuments (including proposed sites);
Negligible	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); and Poorly preserved examples of particular types of minor historic landscape features (e.g., quarries and gravel pits, dilapidated sheepfolds, etc).

Magnitude

- 10.25 Table 10.4, below, presents the criteria for negligible-high magnitudes of beneficial and adverse effects.

Table 10.4: Magnitude of Effect

Magnitude	Adverse Criteria	Beneficial Criteria
High	Loss of most or all key archaeological materials or key historic building elements such that the significance of the heritage asset is totally altered.	Preservation of a heritage asset in situ where it would otherwise be completely or almost lost.
Moderate	Comprehensive changes to setting such as extreme visual effects, gross change of noise or change to sound quality, or fundamental changes to use or access.	Changes that appreciably enhance the cultural significance of a heritage asset and how it is understood, appreciated, and experienced.
Low	Changes to many key archaeological materials or key historic building elements, such that the significance of the heritage asset is clearly modified.	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.
Negligible	Considerable changes to 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 that improve the way in which the heritage asset is understood, appreciated, and experienced.
No Change	Changes to fabric or setting that leave significance unchanged.	

Significance of Effects

10.26 Table 10.5, below, presents the methodology matrix for assessing significance of effects.

Table 10.5: Significance of Effects Matrix

	Importance			
Magnitude	Very High	High	Medium	Low
Major	Major beneficial/adverse (Significant)	Major beneficial/adverse (Significant)	Moderate-Major beneficial/adverse (Significant)	Minor- Moderate beneficial/adverse (Potentially significant)
Moderate	Major beneficial/adverse (Significant)	Moderate-Major beneficial/adverse (Significant)	Moderate beneficial/adverse (Significant)	Minor beneficial/adverse (Not significant)
Minor	Moderate-Major beneficial/adverse (Significant)	Minor- Moderate beneficial/adverse (Potentially significant)	Minor beneficial/adverse (Not significant)	Minor beneficial/adverse (Not significant) or neutral
Negligible	Minor beneficial/adverse (Not significant)	Minor beneficial/adverse (Not significant)	Minor beneficial/adverse (Not significant) or neutral	Neutral

No Change	Neutral	Neutral	Neutral	Neutral

Assumptions and Limitations

- 10.27 During the walkover survey, every effort was made to visit locations where detailed setting assessment was requested by consultees. However, not all locations could be visited, and where this was the case, other methods were used, such as topographic information, ZTV, aerial photography, and Google Earth mapping, to support the assessment and mitigate this limitation.

Baseline Conditions

- 10.28 The Site is located on the Kintyre Peninsula in Argyll and Bute, north of three existing windfarms; Blary Hill and Beinn an Tuirc 1 and 2. The topography of the area is defined by high ground intercut with burns and glens of varying size, including the Barr Glen running west to north-east from the Site's western extent and Abhainn a'Chnocain running north to south, west of the proposed turbine positions. In the east of the Site the high ground to serve as the location of the proposed turbines is intercut by three named burns running east to west: These are Allt a'Bhlair in the north, Allt Domhain in the centre and Allt an Tuirc in the south.
- 10.29 The geology of the area is characterised by multiple schist formations, comprising metamorphic bedrock which was formed between 1000 and 541 million years ago between the Tonian and Ediacaran periods and one limestone formation formed in the same period. From east to west these are the Beinn Bheula Schist formation between the Beinn an Tuirc wind farm and west side of Blary Hill; Green Beds formation; Glen Sluan Schist Formation, Loch Tay Limestone Formation and Ben Lui Schist Formation. metamorphic bedrock which was formed between 1000 and 541 million years ago between the Tonian and Ediacaran periods. The superficial geology is mostly Till, Devensian – Diamicton, a sedimentary superficial deposit formed between 116 and 11.8 thousand years ago during the Quaternary period with alluvium deposits formed 11.8 thousand years ago, localised in two discrete areas: South-west of Arnicle farmstead and north of Blary Hill, and south-west of Kilmaluag and west of Blary Hill. Alluvium deposits south-west of Kilmaluag are bounded by river terrace gravel deposits to the north and south (See Chapter 9: Geology, Figure 9.2).

Baseline Discussion

- 10.30 The descriptions of the heritage assets that form the baseline for the Cultural Heritage assessment are provided in Technical Appendix 10.1 Cultural Heritage Background and Gazetteer and the locations are shown in Figure 1 Designated and Non-Designated Heritage Assets. Each entry in the gazetteer has a heritage asset (A) reference number which is used to identify it within the assessment. The heritage assets also have a unique identifying number provided by WoSAS's Historic Environment Record (HER) and/or the National Record of the Historic Environment (NRHE). A chronological summary of the area within the proposed development boundary and predicted archaeological survival potential is provided in Appendix 10.1.

10.31 There are seven non-designated heritage assets within the Site boundary, consisting of:

- Cup-markings (prehistoric) (A88) (WoSAS pin 3044)
- Cup-markings (prehistoric) (A85) (WoSAS pin 3037)
- Cup-markings (prehistoric) (A91) (WoSAS pin 3054)
- Cup-markings (prehistoric) (A149) (WoSAS pin 3055)
- Standing stone (prehistoric) (A141) (WoSAS 3053)
- Potential burial ground (no clear date assigned) (A142) (WoSAS pin 3438)
- Bloomery (A143) (WoSAS pin 3448)

10.32 Field boundaries in the north and north-west of the Site are viewed as historic, owing to their visibility in late 19th century Ordnance Survey mapping and are, as such, considered to be heritage assets of **low** importance for the purposes of this assessment. A kiln structure of likely post-medieval date was verified within the Site during the walkover survey (A150). This is also considered to be a heritage asset of **low** importance.

10.33 Three records of previous archaeological investigation are located at least partially within the Site. These are as follows:

- Archaeological Watching Brief: Auchadaduie Wind Farm, Glenbarr, Argyll (WoSAS Event ID 6300)
- Walkover Survey: Field adjacent to the A83, Glenbarr junction and borrow pit area (WoSAS Event ID 5847)
- Archaeological Watching Brief: Overhead Line Pole Replacement, Kilmaluag, Glen Barr, Argyll (WoSAS Event ID 4070)
- Systematic Reconnaissance Survey at Arinanuan Farm for TilHill Economic Forestry, Argyll and Bute (WoSAS Event ID 865)

10.34 Of the four investigations listed above the only investigation to record heritage assets was the reconnaissance survey at Arinanuan (WoSAS Event ID 865). This survey recorded features including a cairn and remains of turf and stone buildings in an area largely to the north of the Site. No such features are specifically recorded within the Site. A WoSAS record located within the Site confirms negative evidence in association with the Auchadaduie watching brief (A148, WoSAS Event ID 6300).

10.35 The closest three designated heritage assets outwith the Site within the 10km study area are:

- Blary, dun ENE of (A1) (SM3077)
- Garvalt, dun 500m SW of (A2) (SM3740)
- Crois Mhic Aoidh, standing stone (A27) (SM251)

10.36 A further three non-designated NSR heritage assets are recorded immediately north of the Site at Kilmaluag. These are as follows:

- Hut circles; field system (no clear date assigned) (A81) (WoSAS pin 3047)
- Hut circles; field system (no clear date assigned) (A82) (WoSAS pin 3047)

- Hut circles; field system (no clear date assigned) (A84) (WoSAS pin 3047)

Future Baseline

- 10.37 In the event of no development taking place, use of land within the Site is a continuation of rough pasture usage.

Identification and Evaluation of Key Effects

Assessment of Effects on Cultural Heritage through Disturbance

Potential surviving archaeological remains within the Site

- 10.38 The potential for hitherto unrecorded archaeological remains within the Site of prehistoric or medieval date is assessed as high, derived from the known presence of locations of the non-designated hut circles in addition to the proximity of prehistoric cup-marked rocks and defended settlements discussed in Technical Appendix 10.1.
- 10.39 The baseline conditions discussed in Technical Appendix 10.1 suggests there is a high potential for prehistoric, early medieval to medieval and post-medieval period remains based on remains within the Site summarised in paragraph 10.30, and the presence within the Site of field boundaries dating to at least the 19th century, immediate surroundings of agricultural associated remains including field systems. Any disturbance of these assets, principally anticipated through the construction of the proposed northern Site access route, would result in a **high** magnitude of change to assets of **medium-high** (further prehistoric, early medieval or medieval remains) or **low** (post-medieval remains) importance and the effects would potentially be **minor to major** adverse, being **significant** in the absence of mitigation.

Known heritage assets within the Site

- 10.40 Site infrastructure and proposed construction phase works including all access route options are located away from recorded heritage assets, and the routes would not affect the assets' significance. However, there is potential for the disturbance or removal of assets by construction works. Any disturbance to assets through amendments to proposed routes or supplementary infrastructure i.e. laydown areas would be up to a **high** magnitude of change to heritage assets of **low** importance in the case of known field boundaries to the north of Barr Glen or kiln structure (A150) resulting in a **minor adverse** effect (**not significant**), and a **high** magnitude of change to an asset of **medium** importance in the case of the recorded burial ground (A142) resulting in a **moderate-major** adverse effect that would be **significant** in the absence of mitigation.

Assessment of Effects on Cultural Heritage arising through change to setting

- 10.41 Potentially significant effects originating through change to the setting of heritage assets are not anticipated through the construction of either proposed access route as Site infrastructure. These effects have not been taken forward for assessment.

Blary, Dun, ENE of (SM3077/A1)

Importance and Present Setting

- 10.42 Dun Blary is a scheduled monument located 2.3km north-west of turbine location T5 comprising the remains of an oval-shaped dun occupying a knoll overlooking Barr Water to the north. No specific period is assigned to the monument in previous investigation, so a date range of later prehistoric to early medieval is assumed. The remains measure 21.5m by 15m internally with the debris of the wall forming a low bank around the margin of the knoll summit and a spread of loose material down the south and east banks (RCAHMS 1971).
- 10.43 The high importance of this monument is drawn from archaeological and historic interest. The former through the monument's potential to provide further evidence for later prehistoric settlement in Kintyre and the latter for providing a representative example of this monument type, providing associations with a particular settlement practice. The dun's setting is primarily associated with Barr Glen. The dun's position on a hilltop overlooking Barr Water grants commanding views along the watercourse and valley floor to the north east and south west. The gradual rise in topography to the south, containing views of the existing Blary Hill wind farm orients the monument's outward views to the lower ground of the glen, resulting in an implicit association with the glen. This setting makes a contribution to the importance of the monument.

Change to Setting

- 10.44 The ZTV (Figure 10.1) shows the monument in an area of visibility for 7-9 turbines to blade tip. These would appear in outward views from the monument to the east. A photomontage visualisation view from the monument (Figure 10.3) shows eight of the nine turbines (turbine positions T1, T2, T3, T4, T5, T6, T7 and T9) would be visible from the monument to the south-east with the existing Blary Hill turbines in the foreground between turbine positions T5 and T9, and to the right of T6. Views toward the monument would feature all nine turbine locations from the approach road up the Barr Glen would include the turbines in the background when looking from the road for approximately 500m, with vegetation potentially limiting this area further. All nine proposed turbines would also be visible behind the monument in south-east facing views from Kilmaluag, though the monument itself is not immediately perceptible at this height and distance (Fig 10.4).
- 10.45 The addition of an access track in views to the north and north-east, in the event the proposed northern access option is taken forward, would add a clear modern component in this orientation through the visibility of modern infrastructure and visible and audible traffic movement both on hills to the north of Barr Glen and the valley floor around Barr Water.

Significance of Effect

- 10.46 As this monument's key setting relationship is to the valley floor of Barr Glen and Barr Water and associated directed views to the west, south west and north east, the addition of turbines in views to the east is not anticipated to impact the integrity of the monument's

setting. The addition of new access tracks to the north would add visibly modern supporting infrastructure to views to the north and north-east, adding to existing road and farm track infrastructure. This would not fundamentally alter the existing modern rural character of the landscape surrounding the asset, and the integrity of setting would be preserved. This would be a **low** magnitude of change producing a **minor** adverse effect which would be **not significant**.

Garvalt, dun 500m SW of (SM3740/A2)

Importance and Present Setting

- 10.47 Dun Garvalt (SM3740) is a scheduled monument located 1.5km north-west of turbine location T1. The monument comprises the remains of a circular dun (period not assigned, later prehistoric-early medieval construction and occupation assumed) on a south-east facing hillside with a diameter of 15m (internal diameter 6m). The legibility of the monument's wall is limited to the south and east where it consists of a band of core material from which one stone of the inner face and a long stretch of the outer face protrude. The 1.2m-wide entrance position is indicated on the south-west by three earthfast slabs (RCAHMS 1971, CFA 1993). A later field bank adjoins the dun on the east, running at right angles to the slope. To the west of the dun is a substantial stone-built structure, possibly a corn-drying kiln. There are further remains of structures and enclosures in the vicinity of the dun, possibly remains of shielings or more permanent settlement.
- 10.48 The national importance of this monument is associated with its status as an example of a multi-period settlement complex. This carries the potential to increase understanding of later prehistoric-early medieval life and settlement architecture, and of medieval or later rural domestic life and land use. The contribution of setting to this importance is primarily through the dun's position on the north side of the Barr Water and south-eastern orientation directing outward views southward to the valley floor and north-east and south-westward along the watercourse. This setting relationship is partly compromised at present by the cycle of afforestation and deforestation immediately west and south-west of the monument, partly screening views in these directions.

Change to Setting

- 10.49 The ZTV and photomontage (Figure 10.1 and Figure 10.5) shows the monument in an area of visibility for 7-9 turbines to blade tip. As shown in the photomontage, all nine turbines would appear in outward views from the monument to the south east, across the Barr Glen with the existing turbines of Blary Hill in views to the south and Beinn an Tuirc 1 in the long-distance background. The turbines would appear from left to right in these views as turbine position T2 standing alone, T1 and T4 in close proximity to one another, T3 and T7 in close proximity to one another, T9 standing alone, T5 standing alone and T6 and T8 appearing aligned, with T6's hub appearing above that of T8. All turbines would be visible to hub height and to much of their respective towers' height. Visual separation would be maintained by local topography in the form of ground falling to the Water of Barr then rising to the south of the watercourse. The proposed access track would appear in views to the south-west and south past Arnicle Farmstead at a distance of 1-1.4km as clearly modern access infrastructure, with visual and audible elements added by construction and maintenance traffic.

Significance of Effect

- 10.50 The monument's setting is primarily characterised by its hillside location and associated relationship to Barr Glen, with a commanding view of the lower ground in the middle distance reinforced by rising topography south of Barr Water. The appearance of the turbine array would be clearly visible beyond the valley floor to the south-east and south, appearing along the eastern side of the Abhainn a' Cnocain valley. The scale of the proposed development would ensure clear visibility, adding to the existing modern generation component of the landscape as seen from this vantage point. The addition of the turbines would not fundamentally alter the monument's relationship to the valley floor or disrupt the integrity of the monument's setting, though the Proposed Development would ensure a new feature peripheral to this visual relationship. The addition of the access track in views to the south and south-west would influence new peripheral features in these directions but the integrity of the monument's setting would not be altered. This would be a **low** magnitude of change resulting in a **minor adverse** effect which would be **not significant**.

Carradale, fort, Kilbrennan Sound (SM2180/A3)

Importance and Present Setting

- 10.51 The scheduled monument consists of the remains of a vitrified fort located 7.3km south-east of T2 at the summit of Carradale Point, an elongated peninsula periodically cut off from the mainland by high tide on the eastern coast of Kintyre. The surviving remains comprise a continuous wall and outworks originally comprised of stone and timber enclosing an internal area of 56m by 23m.
- 10.52 The national importance of this monument is derived from archaeological and historic interest, associated with its illustrative example of and potential to yield further evidence of defended settlement within this region. The setting contributes to this importance, primarily through the evocative promontory location, partial access owing to tidal inundation, and orientation of views south and eastward to the Kilbrannan Sound.

Change to Setting

- 10.53 The ZTV and the wireline visualisation (Fig 10.1 and Fig 10.6) show the monument in a ZTV for 1-3 turbine blade tips. The proposed development would appear in long-distance outward views from 7.3km to the west of the monument, as shown in Fig 10.6. Three of the proposed turbines (T2, T4 and T7) would appear behind ridgelines of increasing topography, with one position (T2) showing to hub height and the other two showing as blade tips intermittently appearing behind the ridge. Visual separation would be maintained from the monument through general distance and the intervening features of Carradale harbour and rising topography to the west.

Significance of Effect

- 10.54 The monument's key setting characteristic relates to its position projecting to the east of Carradale Harbour and visual relationship with both the harbour and the Kilbrannan Sound. The addition of modern, utilitarian infrastructure in western views from the monument would not impose on this sense of place and would introduce a **negligible**

magnitude of change, resulting in a **minor adverse** effect. This effect would be **not significant**.

Dun Sheallaidh, dun (SM3280/A11)

Importance and Present Setting

- 10.55 Dun Sheallaidh is a scheduled monument located 6.3km west of T6 comprising the remains of a dun occupying the brink of a steep slope overlooking the Bellochantuy machair to the west from a height of 70.0m OD. Survival of the dun is partial and the wall is only legible round the south and western arcs. The original walls are believed to have enclosed an area of around 25.5m. A later oval enclosure, overlying the dun wall on the east, occupies the eastern part of the interior, measuring 15x9m within a low bank. No entrance is visible.
- 10.56 The national importance of this monument is drawn from archaeological and historic interest associated with its status as an initially fortified settlement with later phases of occupation. The primary component of the monument's setting is its location atop a steep slope oriented to the west. This would be read through key westward views out from the monument taking in its location relative to land at the base of the slope, the sea and associated transport routes.

Change to Setting

- 10.57 The monument is located within two ZTVs, one in the northern half of the monument for 7-9 blade tips and a second in the southern half of the monument for 4-6 blade tips (Fig 10.1). As shown in the wireframe visualisation, centred on the recorded centrepoint of the monument (Fig 10.7), five of the proposed turbines (T1, T2, T4, T5, T7) would be visible in long distance outward views from 6.3km to the east. All turbines would appear as intermittently visible blade tips appearing from behind a ridgeline. The overall distance from the monument in addition to intervening rising topography would create a visual separation between the monument's immediate surroundings and the proposed development.

Significance of Effect

- 10.58 The setting of this monument is primarily characterised by its topographic position and the resulting orientation of outward views to the west. The visibility of five proposed turbine blade tips behind a ridgeline to the east would not alter this characteristic. As such, the proposed development is anticipated to introduce a **negligible** magnitude of change resulting in a **minor adverse** effect. This effect would be not significant.

Puball Burn, enclosure 580m SE of Skeroblingarry (SM3642/A20)

Importance and Present Setting

- 10.59 This monument consists of an oval ditch, roughly 2m enclosing an approx. 49x42.5m area 9.9km south of T8. A 19th century account associates the enclosure with worship in "troublesome" times, and notes an urn containing ancient coins recovered through ploughing. The enclosure is located in a relatively level plateau, at the convergence of a tributary with the Puball Burn with watercourses to the north and south.

- 10.60 The monument's national importance is derived from archaeological interest through its potential to yield evidence of past activity. In as much as the monument's setting contributes to its importance, the key component of its setting is its location relative to the nearby watercourses and occupation of level ground within its immediate surroundings, contrasting with rising topography in the middle distance.

Change to Setting

- 10.61 The monument is located on the boundary between ZTVs for 1-3 or 4-6 turbine blade tips (Fig 10.1). As shown in the wireline visualisation (Fig 10.8), four of the proposed turbines (T6, T7, T8, T9) would appear in long-distance outward views from 9.9km to the north, behind rising topography providing some visual separation from the monument.

Significance of Effect

- 10.62 The addition of visibly modern infrastructure behind ridgelines in outward views to the north would not alter the nature of the enclosure's setting (primarily characterised by contrast with rising topography surrounding the level ground it occupies). This would be a **low** magnitude of change, resulting in a **minor adverse** effect which would be not significant.

Crois Mhic Aoidh, standing stone (SM251/A27)

Importance and Present Setting

- 10.63 This scheduled monument is a single standing stone of Bronze Age or Neolithic date located 1.1km south-east of turbine position T8, south of Beinn an Tuirc wind farm in a former forestry clearing. The stone measures 1.6m in height and stands at an angle. The top of the stone is pointed and it is 1.4m wide by 0.3m deep. The stone is carved with two apparent large 'M' characters on its faces.
- 10.64 The stone's high importance derives from its potential to add to understanding of the past, with particular emphasis on the ritual life of Neolithic and Bronze Age communities. As the stone and its immediate surroundings are relatively undisturbed, there is potential for the preservation of associated archaeological deposits. In addition, there is potential for the survival of evidence of the relationships between this monument and nearby standing stones and stone circles. The monument's setting makes a neutral contribution to this importance owing to the visual impact of existing onshore wind infrastructure in outward views to the middle distance, via Beinn an Tuirc wind farm and Blary Hill wind farm.

Change to Setting

- 10.65 As shown in the wireline visualisation (Figure 10.9), five of the proposed turbines (T5, T6, T7, T8, T9) would appear in outward views from 1.1km north-west of the stone. All would be visible to hub height, with three showing full hub visibility (T6, T7, T8). Two turbine positions (T7, T9) would appear behind the existing turbine array for Beinn an Tuirc. Views of the monument as approaching from the south would also be affected by the relative scale of the proposed turbines.

Significance of Effect

- 10.66 The addition of the proposed turbine positions in views to the north from the monument would add a visibly modern component of noticeably greater scale than the existing Beinn an Tuirc turbines. The new turbine positions would not alter the visual relationship between the stone and its immediate surroundings or the watercourse to the south. The proposed development would introduce a **low** magnitude of change resulting in a **minor adverse** effect, which would be **not significant**.

Barlea, Standing Stone & cairn (SM178/A30)

Importance and Present Setting

- 10.67 This scheduled monument consists of a standing stone and burial cairn of Bronze Age date, located 6.5km west of T5. The standing stone is situated 18.5m south of the cairn and occupies the northern edge of a field overlooking the Allt an Fhraoich watercourse. It measures 1.8m in height, 1.2m by 0.3m at its base and is aligned north-north-east to south-south-west. The stone was re-erected in March 2015 after falling in November 2014. This involved excavation of an area 2x2m at the base of the stone, revealing an ashy deposit with possible fragments of burnt bone partially overlying one of the packing stones., with a radiocarbon date indicating a Late Bronze Age date for the ashy deposit.
- 10.68 The burial cairn overlooks the left bank of the Allt an Fhraoich and survives today as a low mound of stones covering an approximate 21.5m by 7.5m area. Some of its present size may be due to the dumping of stones cleared from the adjacent field. Three large stone slabs (two present in the centre of the cairn and one at its edge) are interpreted as belonging to a cist recorded in the cairn through excavation in 1867.
- 10.69 The high importance ascribed to the scheduled monument is associated with archaeological and historical interest, focused on the capacity of both constituent features to yield further evidence through investigation related to the Bronze Age funerary and ritual landscape, and association with similar contemporary monuments within the Kintyre region.
- 10.70 The setting of the two features covered by this scheduled monument is shared and relates, in part to the spatial relationship between the cairn and the standing stone. A key component in this setting is the location of both features relative to the Allt an Fhraoich and the shoreline, with the downward western slope of the land they occupy particularly orienting views westward to the sea.

Change to Setting

- 10.71 This asset is located in a ZTV for 7-9 turbines (Fig 10.1). As illustrated in the wireline visualisation (Fig 10.10), all nine proposed turbine positions would appear in long-distance outward views from 6.5km to the east. All turbines would be visible to hub height with the associated towers largely obscured behind ridgelines. Rolling topography to the east, in addition to overall distance, would create visual separation from the proposed turbines and the monument's immediate surroundings.

Significance of Effect

- 10.72 The key characteristic of the monument's setting is the positioning of the two features relative to the nearby watercourse and shoreline. Outward views from the monument are primarily oriented westward. The addition of the proposed turbines as a modern visual component to the east would not alter this characteristic. The proposed development would introduce a **low** magnitude of change resulting in a **minor adverse** effect, which would be **not significant**.

Skeroblin Hill, cairn (SM3108/A33)

Importance and Present Setting

- 10.73 This asset is a scheduled monument comprising a cairn on Skeroblin Hill, located 9.2km south-west of T8. The cairn occupies the level summit of Skeroblin Hill and measures 10.7m in diameter and 0.8m in height. The monument represents an earlier structure which was dismantled and the material apparently used to construct a modern cairn. The monument is bounded by an area of managed woodland, with full tree cover to the north and land to the south, south-east and south-west presently in an afforestation planting phase. The importance of this monument is derived from archaeological and historic interest, associated with the potential of the cairn to yield further evidence for the funerary practices of later prehistoric communities within Kintyre.

Change to Setting

- 10.74 The monument is located within a ZTV for 7-9 turbines. As shown in the wireframe visualisation (Fig 10.11), all nine turbine positions would be visible to hub height with some tower visibility in long distance outward views from 9.2km north, largely positioned west of the existing Beinn an Tuirc I wind farm, with five turbine positions (T1, T4, T7, T8, T9) appearing in a relatively topographically open position between two raised areas. The topography in the intervening distance is relatively low-lying with intermittent lower rises, with the overall distance creating a sense of visual separation between the monument's immediate surroundings and the proposed turbine array.

Significance of Effect

- 10.75 The addition of the proposed turbine array in long views to the north from the monument would be a clear addition of modern, utilitarian power infrastructure, though distance would ensure visual separation from the lower-lying topography the cairn would overlook in the absence of tree cover to the north. This would be a **low** magnitude of change, resulting in a **minor adverse** effect which would be **not significant**.

An Dunan, dun, WSW of Auchadaduie (SM3111/A34)

Importance and Present Setting

- 10.76 An Dunan is a scheduled monument located 4.3km west of T5, consisting of a dun within an area of managed woodland at the western end of the Barr Glen, overlooking Barr water from a height of 45.0m OD. The dun likely measured 15m by 12m internally, though survival of the enclosing wall is partial, with the wall completely absent at the north-west.

Elsewhere the wall survives as a band of stony debris at the maximum height of 1.2m. No features are immediately discernible in the interior of the feature aside from a ruinous wall that is likely later than the original construction.

- 10.77 The high importance assigned to this monument derives from archaeological and historic interest, with key points of focus being the monument's suggestion to yield evidence for later prehistoric/early medieval defended settlement through further investigation and the status of the surviving remains as illustrative of this type of settlement feature within the region. The monument's setting is primarily associated with its occupation of high ground overlooking the floor of Barr Glen to the north, west and east with the Barr Water orienting views westward and north-eastward. This setting contributes to the monument's importance.

Change to Setting

- 10.78 The monument is located within a ZTV for 4-6 turbine blade tips with a small southern extent of the scheduled area extending into a ZTV for 7-9 blade tips. As shown in the wireframe visualisation (Fig 10.12), eight of the nine proposed turbine positions (T1, T2, T3, T4, T5, T6, T7, T9) would be visible in long distance outward views from 4.3km to the east. Six of the turbines (T1, T2, T3, T4, T5, T7) would be visible to hub height, with the remaining two appearing as blade tips. All turbine positions would appear behind a ridgeline, and five of the eight would be partially viewed behind existing turbines of the Blary Hill wind farm. The intervening fall and rise in topography to the east of An Dunan in addition to distance creates a visual separation from the monument's immediate surroundings.

Significance of Effect

- 10.79 The primary characteristic of this monument's setting is its relationship to Water of Barr and the Barr Glen valley floor, overlooking both from a higher ground level and following the watercourse to the west and north-east. The addition of clearly modern power infrastructure in the form of the proposed turbines would not alter this setting relationship. The proposed development would introduce a **low** magnitude of change, resulting in a **minor adverse** effect which would be **not significant**.

Achamore House designed landscape (GDL00005/A80)

Importance and Present Setting

- 10.80 Achamore House is a designed landscape located 13.3km north-west from T1 on the south-eastern side of the Isle of Gigha. This designed landscape comprises woodland planting established in the early 1880s sheltering a woodland garden, initiated in 1944 in a series of distinct named compartments. The development of the landscape occurred in multiple phases from initial planting in the 1880s, additions in the 1940s and subsequent improvements and replanting to the time of writing.
- 10.81 The importance of Achamore House designed landscape is primarily associated with its horticultural (quality and variety amassed and developed by Sir James Horlick), architectural (providing the setting for a Category B-listed building), scenic (adding some scenic value to the Gigha landscape seen primarily from the sea to the east) and nature conservation (through the establishment of woodland habitats on the island). The

contribution of the asset's setting to this importance is primarily reflected in its scenic value, largely based on middle-distance inward views. Long-distance views outward from the designed landscape do not contribute to its importance.

Change to Setting

- 10.82 The designed landscape is located within a ZTV for 7-9 blade tips. As shown in the wireline visualisation (Fig 10.13), all nine proposed turbine positions would be visible to hub height in outward views from the centre of the asset 13.3km to the south-east. The appearance of the turbines across the Straits of Gigha would create a visual separation of the turbines from the designed landscape.

Significance of Effect

- 10.83 The key setting characteristics of the Achamore House designed landscape relate to its appearance in inward views of the asset from the Sound of Gigha, and its contrast in character as an ornamental area of ornamental, tree-planted land with the surrounding rough pasture. The appearance of the proposed turbines in outward views, separated from the asset and its immediate surroundings by the Sound of Gigha and landward topography. The addition of visibly modern power infrastructure via the proposed turbines would not alter the characteristics of the setting. This would result in a **low** magnitude of change, resulting in a **minor adverse** effect which would be **not significant**.

Decommissioning Effects

- 10.84 The effects of decommissioning would effectively be the removal of the new visual element introduced by the proposed development in addition to potential effects arising from the decommissioning process itself or the temporary occupation of land. The effects would generally be temporary and of limited duration and are anticipated to be negligible.

Mitigation Measures and Monitoring

- 10.85 The presence of heritage assets within the Site (primarily prehistoric hut circles, post-medieval agricultural remnants and prehistoric rock art) identified in this chapter indicate a high potential for survival of similar archaeological remains within the Site. Effects on these heritage assets and potential archaeological remains during the construction phase could be effectively mitigated by an agreed programme of archaeological works prepared in consultation with WoSAS and subject to condition. The programme methodology would be set out in a written scheme of investigation (WSI) and could incorporate walkover survey and an archaeological watching brief.

Cumulative Effects

- 10.86 The Site is bordered by three existing wind farms: Beinn an Tuirc I is located immediately east of the Site, with Beinn an Tuirc II immediately south of the Site and Clary Hill wind farm immediately west and south of the Site. A further five existing wind farms are located within 10km. These are Auchadaduie, Tangy I and Tangy II south-west of the Site, Beinn an Tuirc III south of the Site and Deucheran Hill north of the Site. Two consented wind farms are

located within 10km of the Site: Clachaig Glen to the north of the Site and Tangy IV Repower, south-west of the Site. Applications are in place for three wind farms within 10km of the Site. These are West Torrisdale east of the Site, Cnoc Buidhe south-west of the Site and Killeen, north-west of the Site.

- 10.87 A potential receptor for significant effects has been identified at Skeroblin Hill cairn (A33). For Skeroblin Hill (A33), the addition of the proposed turbines in views to the north would appear to the right of the in-application Cnoc Buidhe wind farm and in front of the in-scoping Deucheran Hill 2 wind farm. In effect, the proposed turbines would extend the field of view in which turbines could be seen from the in-application Cnoc Buidhe wind farm if Cnoc Buidhe is consented, though the Allt Domhain turbines would be more distant. The in-scoping Deucheran Hill 2 wind farm turbines would appear behind the Proposed Development if this were consented. Gaps would still be visible from the asset in the eastern extent of Cnoc Buidhe and consented Tangy IV, with the Proposed Development not fully bridging a visual gap between the easternmost three turbine positions of Cnoc Buidhe. This is not anticipated to alter the integrity of the monument's setting owing both to visual separation and the present utilitarian land-use of the monument's immediate surroundings and rural context. This would provide a **low** magnitude of change resulting in a **minor adverse** effect that would be **not significant**.

Residual Effects

- 10.88 A summary of the residual effects assessment is provided in Table 10.6 below.

Table 10.6 Residual Effects

Potential Receptor and Effect	Magnitude of Change	Receptor Sensitivity	Significance: Construction	Significance: Operation	Significance: Decommissioning	Significance: Cumulative	Summary Rationale
Disturbance of previously recorded heritage assets within the Site	Negligible	Low-Medium	Not Significant	N/A	N/A	N/A	Design of proposed development infrastructure for avoidance and monitoring where avoidance not feasible would preclude any disturbance of the identified features. To be enforced through engagement with WoSAS and the client.
Disturbance of previously unrecorded heritage assets within the Site	Negligible	Medium	Not Significant	N/A	N/A	N/A	Mitigation strategy entailing archaeological monitoring agreed with WoSAS would preclude significant effects.
Effect on character and setting of Blary, Dun, ENE of (SM3077/A1)	Low	High	Not Significant	Not significant	Not significant	Not significant	As this monument's key setting relationship is to the valley floor of Barr Glen and Barr Water and associated directed views to the west, south west and north east, the addition of turbines in views to the east is not anticipated to impact the integrity of the setting. This would be a low magnitude of change producing a minor adverse not significant effect.
Effect on character and setting of Garvalt, dun 500m SW of (SM3740/A2)	Low	High	Not Significant	Not significant	Not significant	Not significant	The monument's setting is primarily characterised by its relationship to Barr Glen, a commanding view of the lower ground in the middle distance reinforced by rising topography

Potential Receptor and Effect	Magnitude of Change	Receptor Sensitivity	Significance: Construction	Significance: Operation	Significance: Decommissioning	Significance: Cumulative	Summary Rationale
							south of Barr Water in addition to cyclical woodland plantation. The appearance of the turbine array, while clearly visible would not disrupt this core component of setting. This would be a low magnitude of change producing a minor adverse effect that would not alter the integrity of the monument's setting.
Effect on character and setting of Carradale, fort, Kilbrennan Sound (SM2180/A3)	Negligible	High	N/A	Not Significant	Not significant	Not significant	The monument's key setting characteristic relates to its position projecting to the east of Carradale Harbour and visual relationship with both the harbour and the Kilbrannan Sound. The addition of modern, utilitarian infrastructure in western views from the monument would not impose on this sense of place and would introduce a negligible magnitude of change, resulting in a minor adverse effect. This effect would be not significant.
Effect on character and setting of Dun Sheallaidh, dun (SM3280/A11)	Low	High	N/A	Not significant	Not significant	Not significant	The setting of this monument is primarily characterised by its topographic position and the resulting orientation of outward views to the west. The visibility of five proposed turbine blade tips behind a ridgeline to the east would not alter this characteristic. As such, the proposed development is

Potential Receptor and Effect	Magnitude of Change	Receptor Sensitivity	Significance: Construction	Significance: Operation	Significance: Decommissioning	Significance: Cumulative	Summary Rationale
							anticipated to introduce a negligible magnitude of change resulting in a minor adverse effect. This effect would be not significant.
Effect on character and setting of Puball Burn, enclosure 580m SE of Skeroblingarry (SM3642/A20)	Low	High	N/A	Not significant	Not significant	Not significant	The addition of visibly modern infrastructure behind ridgelines in outward views to the north would not alter the nature of the enclosure's setting (primarily characterised by contrast with rising topography surrounding the level ground it occupies). This would be a minor magnitude of change, resulting in minor adverse effect which would be not significant.
Effect on character and setting of Crois Mhic Aoidh, standing stone (SM251/A27)	Low	High	N/A	Not Significant	Not significant	Not significant	The addition of the proposed turbine positions in views to the north from the monument would add a visibly modern component of noticeably greater scale than the existing Beinn an Tuirc turbines. The new turbine positions would not alter the visual relationship between the stone and its immediate surroundings or the watercourse to the south. The proposed development would introduce a minor magnitude of change resulting in a minor adverse effect, which would be not significant.

Potential Receptor and Effect	Magnitude of Change	Receptor Sensitivity	Significance: Construction	Significance: Operation	Significance: Decommissioning	Significance: Cumulative	Summary Rationale
Effect on character and setting of Barlea, Standing Stone & cairn (SM178/A30)	Low	High	N/A	Not significant	Not significant	Not significant	The key characteristic of the monument's setting is the positioning of the two features relative to the nearby watercourse and shoreline. Outward views from the monument are primarily oriented westward. The addition of the proposed turbines as a modern visual component to the east would not alter this characteristic. The proposed development would introduce a low magnitude of change resulting in a minor adverse effect, which would be not significant.
Effect on character and setting of Skerobblin Hill, cairn (SM3108/A33)	Low	High	N/A	Not significant	Not significant	Not significant	The addition of the proposed turbines in views to the north would appear to the right of the in-application Cnoc Buidhe wind farm and in front of the in-scoping Deucheran Hill 2 wind farm. In effect, the proposed turbines would extend the visual effect the in-application Cnoc Buidhe wind farm and the existing Beinn an Tuirc I if Cnoc Buidhe is consented, bolstered further by the in-scoping Deucheran Hill 2 wind farm turbines appearing behind the Proposed Development if this is consented. Gaps would still be visible from the asset in the eastern extent of Cnoc Buidhe

Potential Receptor and Effect	Magnitude of Change	Receptor Sensitivity	Significance: Construction	Significance: Operation	Significance: Decommissioning	Significance: Cumulative	Summary Rationale
							and Tangy IV, with the Proposed Development not fully bridging a visual gap between the easternmost three turbine positions of Cnoc Buidhe and Beinn an Tuirc 1. This is not anticipated to alter the integrity of the monument's setting owing both to visual separation and the present utilitarian land-use of the monument's immediate surroundings and rural context. This would provide a low magnitude of change resulting in a minor adverse effect that would be not significant.
Effect on character and setting of An Dunan, dun, WSW of Auchadaduie (SM3111/A34)	Low	High	N/A	Not significant	Not significant	Not significant	The primary characteristic of this monument's setting is its relationship to Water of Barr and the Barr Glen valley floor, overlooking both from a higher ground level and following the watercourse to the west and north-east. The addition of clearly modern power infrastructure in the form of the proposed turbines would not alter this setting relationship. The proposed development would introduce a low magnitude of change, resulting in a minor adverse effect which would be not significant.

Effect on character and setting of Achamore House designed landscape (GDL00005/A80)	Low	High	N/A	Not Significant	Not significant	Not significant	The key setting characteristics of the Achamore House designed landscape relate to its appearance in inward views of the asset from the Sound of Gigha, and its contrast in character as an ornamental area of ornamental, tree-planted land with the surrounding rough pasture. The appearance of the proposed turbines in outward views, separated from the asset and its immediate surroundings by the Sound of Gigha and landward topography. The addition of visibly modern power infrastructure via the proposed turbines would not alter the characteristics of the setting. This would result in a low magnitude of change, resulting in a minor adverse effect which would be not significant.

Summary

- 10.89 This chapter considers the effects of the proposed Allt Domhain Wind Farm ('the proposed development') on Cultural Heritage and Archaeology. The assessment has identified five potential receptors for significant effects via changes within the setting of heritage assets (five scheduled monuments within a Study Area of 10km) in addition to a high potential for archaeological remains of prehistoric and post-medieval date within the Site.

The proposed development would introduce a new, visible, and clearly modern visual component to views of and from the receptors assessed. These effects, however, are not considered likely to be significant. The construction of Site infrastructure has potential to remove or disturb both recorded and previously unrecorded archaeological remains within the Site but following an agreed programme of mitigation through preliminary walkover survey, micro-siting and/or on-site monitoring of access works and turbine installation this would not be anticipated to result in a significant effect.

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Allt Domhain Wind Farm

Environmental Impact Assessment Report Volume 1 Chapter 11: Noise

June 2025

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Glossary and Abbreviations

Term	Definition
NAL	Noise Assessment Location
CNAL	Construction Noise Assessment Location
NML	Noise Monitoring Location
IOA	Institute of Acoustics
GPG	Good Practice Guide
dB	Decibels
EHO	Environmental Health Officer
ECU	Energy Consents Unit

11 NOISE

Introduction

- 11.1 This chapter considers the likely significant effects with respect to the noise associated with the construction and operation of the proposed development. The proposed development is for nine commercial onshore wind turbines and associated access tracks and infrastructure, with tip heights of either 200 m or 230 m.
- 11.2 The potential impact is assessed at nearby noise sensitive receptors (i.e. residential properties), with reference to relevant planning and noise guidance. The specific objectives of the chapter are to:
- describe the noise baseline;
 - describe the assessment methodology and significance criteria used in completing the impact assessment;
 - describe the potential effects (including cumulative effects);
 - describe the mitigation measures proposed to address likely significant effects; and
 - assess the residual effects remaining following the implementation of mitigation.
- 11.3 This chapter is supported by the following figures as contained within Volume 2: Figures:
- Figure 11.1: Construction Noise Assessment Locations; and
 - Figure 11.2: Operational Noise Monitoring and Assessment Locations.
- 11.4 The chapter is supported by a number of Technical Appendices (as set out within Volume 4: Technical Appendices), comprising:
- Technical Appendix 11.1: Construction Noise Report; and
 - Technical Appendix 11.2: Operational Noise Report.
- 11.5 Figures and technical appendices are referenced in the text where relevant. The technical appendices are full reports containing the detailed assumptions and findings, and this chapter presents a summary.
- 11.6 The assessment has been carried out by Alex Dell and approved by Gemma Clark, both of TNEI Services Ltd. Alex Dell is a Full Member of the Institute of Acoustics and holds a PhD in Mechanical Engineering with 4 years of wind farm noise assessment experience. Gemma Clark is also a Full Member of the Institute of Acoustics with over 18 years of experience in wind farm noise assessments and preparing Environmental Impact Assessments (EIA).

Legislation, Policy and Guidance

Legislation

- 11.7 Relevant legislation and guidance documents have been reviewed and taken into account as part of this noise assessment. Of particular relevance are:
- The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (Scottish Government, 2017); and
 - Control of Pollution Act 1974 (HM Government, 1974).

Policy

- 11.8 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. The policies set out include those from the Argyll and Bute Local Development Plan (LDP) relevant aspects of NPF4 (National Planning Framework 4) (2023), Planning Advice Notes and other relevant guidance. The Onshore Wind Policy Statement (Scottish Government, 2022) has also been considered.

Guidance

- 11.9 This assessment was carried out in accordance with the principles contained within the following documents:
- Planning Advice Note (PAN) 1/2011: 'Planning and Noise' (Scottish Government, 2011);
 - BS 5228-1: 2009+A1:2014 'Code of practice for noise and vibration control on construction and open developments - Noise';
 - ETSU-R-97 'The Assessment and Rating of Noise from Wind Farms' (NWG, 1996);
 - Institute of Acoustics (IOA) 'A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise' (IOA GPG, 2013); and
 - ISO 9613-2:2024 'Acoustics – Attenuation of sound during propagation outdoors Part 2: Engineering method for the prediction of sound pressure levels outdoors' (ISO, 2024).

Consultation

- 11.10 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 could result from the proposed development as well as the scope of any assessment work required as part of this EIA.
- 11.11 The Scoping Opinion was received from the Energy Consents Unit (ECU) in June 2021.
- 11.12 Additional consultation relevant to the noise assessment was undertaken with the Environmental Health Department at Argyll and Bute Council (ABC). A summary of the scoping and post scoping consultation responses are provided in Table 11.1.

Table 11.1: Consultation Responses

Consultee	Date Received	Consultation Response	Where and how is this addressed?
ECU (Scoping)	June 2021	The final list of receptors for the noise assessment should be agreed with Argyll and Bute Council. The noise report should be formatted as per Table 6.1 of the IOA GPG.	Prior to the commencement of the noise impact assessment for the proposed development, direct consultation was undertaken with the Environmental Health Department at ABC to agree the approach to the noise assessment. No response was received from ABC and as such the approach set out within the consultation letter was used to conduct the noise impact assessment. The Operational Noise Report (Technical Appendix 11.2) provides all the relevant information as detailed within Table 6.1 of the IOA GPG.
ABC (Scoping)	June 2021	Construction Noise The scoping response acknowledges the use of BS5228 to assess construction noise. It goes on to state <i>'It is anticipated that a Construction Environmental Management Plan will be prepared and this should include control of construction noise and vibration. A condition to require compliance with this could be considered.'</i> Operational Noise It was noted that impacts due to operational wind turbine noise will be assessed, and that the <i>'chosen turbine will be required to comply with the noise limits established in the ETSU-R-97 assessment and noise will be assessed in accordance with the methodology set out in ETSU-R-97 and the IOA Good Practice Guide (GPG).'</i> It is also noted that a cumulative noise assessment will be required to demonstrate that the proposed development can	A summary of the construction noise assessment undertaken in accordance with BS5228 is presented within this chapter and further information can be found in the supporting Technical Appendix 11.1. The operational noise assessment has been undertaken in accordance with ETSU-R-97 and the IOA GPG. A cumulative assessment which considered the potential cumulative noise immission from all relevant operational, consented and proposed (in planning) schemes was undertaken. A list of schemes considered in the cumulative assessment is provided in Table

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		coexist with other wind farm developments within the area. Furthermore, the response detailed that: <i>'Any Noise Impact Assessment (NIA) should consider the potential impact at any dwelling which is lawfully existing or a site which has planning permission for use as a dwelling.</i> <i>If it is anticipated that mitigation measures (e.g. operation of turbines in a reduced noise mode) may be required to achieve prospective noise limits then details should be included in the NIA.</i> <i>It is acceptable for turbine noise predictions to be undertaken using the calculations of an appropriate candidate turbine. It should be expected that any recommendation for approval will include a condition which requires the demonstration of compliance of the turbines to be installed with any noise limits.</i> <i>Where the occupants of any properties are considered to have financial interest in the development then a higher noise limit of 45dB LA90, 10min can be proposed. A list of properties with financial interest has been provided to the Council.</i> <i>Where calculations have been undertaken and corrections have been made as per the GPG (e.g. across a valley and topography screening) the NIA should include a table providing the details of factors at properties/turbines.'</i>	1.1 of Technical Appendix 11.2 and are shown on Figure 11.2. The results are summarised in the relevant sections below. A total of thirteen noise sensitive receptors (NSR) were chosen as representative noise assessment locations (NAL). The NALs chosen were the closest receptors to the proposed development and other wind farm developments. Predictions of wind turbine noise have been made at each of the NAL. Based on the candidate turbine selected for the proposed development no mitigation in the form of mode management is required. The occupiers of three NALs are financially involved (FI) with the proposed development. The FI properties are clearly described within this Chapter. Calculations include topographical corrections (across a valley or topographical screening). A full list of the corrections applied to predictions for each turbine and NAL is provided within Annex 5 of Technical Appendix 11.2.
ABC (Post scoping)		An email received from the Planning Department at ABC	The consultation letter included some additional information on

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		stated that 'we are unable to consult Mott MacDonald at this stage in the process'. Mott MacDonald are the Councils noise consultants therefore no formal response was received from the Council.	potential wind shear adjustments to background noise datasets. The resulting wind shear adjusted background noise datasets were found to be louder than the original Blary Hill prevailing background noise datasets for a given windspeed above 2 ms⁻¹. Therefore, as no response was received from the EHO regarding the use of the shear adjusted data, and because the adjustment was calculated with 2 months wind speed data rather than the recommended 6 months in the IOA GPG, it has been deemed appropriate to use the original unadjusted prevailing background noise levels from the Blary Hill for the operational noise assessment. Further detail is presented within Section 5 of Technical Appendix 11.2 and a copy of the consultation letter is included within Annex 2 of Technical Appendix 11.2.

Assessment Methodology and Significance

Scope of Assessment

Construction Noise Methodology

11.13 The construction noise assessment was undertaken using guidance contained in BS 5228: Part 1 2009+A1:2014 (BS 5228). The prediction of construction noise levels was undertaken using the calculation methodology presented in ISO 9613-2:2024, together with published noise data for appropriate construction plant. To undertake an assessment of the construction noise impact using relevant data from BS 5228, the following steps were undertaken:

- identify the NSRs near potential construction activities and select representative Construction Noise Assessment Locations;
- identify the applicable threshold of significant effects from BS 5228;
- predict the noise levels for various construction noise activities;
- compare predicted noise levels against the applicable thresholds;
- where necessary, develop suitable mitigation measures to minimise any significant adverse effects during the construction phase; and, if required

- assess any residual adverse effects taking into account any identified mitigation measures.

- 11.14 Construction of the proposed development would be undertaken in several successive phases. During each phase the plant and equipment, and the associated traffic, would influence the noise generated. The selection of plant and equipment to be used would be determined by the main contractor and detailed arrangements for on site management would be decided at that time. This assessment has therefore been based upon a typical selection of plant for a wind farm project of this size. In view of this, the plant has been modelled operating at the closest point to each receptor for a given activity in each construction phase whereas in reality only certain plant would be working at the closest point.
- 11.15 The core hours for construction activity will likely be typical construction hours 07:00 to 19:00 Monday to Friday and 07:00 to 13:00 Saturday. There will be no working on Sundays and Public Holidays, however, it should be noted that out of necessity some activity outside of the core hours could arise.
- 11.16 Chapter 3: Project Description describes the outline tasks that will be undertaken during the construction period, which is estimated to last 18 months. For the purposes of this assessment noise modelling has been undertaken for a number of construction scenarios, which simulate the likely overlap of several tasks that would occur throughout the construction period:
- Scenario 01: Site Access Option 1 – Blary Hill Route: Access tracks are being constructed off existing Blary Hill Wind Farm tracks. It is assumed that temporary earthworks are required to improve upon the existing Blary Hill access route.
 - Scenario 02: Site Access Option 2 – Northern Bypass off A83: Junctions off the A83 and Barr Glen road are being constructed. Construction of the access track from the junctions towards the site is occurring. A bridge over Barr Glen, to the west of Arnicle, is being constructed.
 - Scenario 03: The access track to the site is now being constructed from the point where the two optional routes merge. Culverts are being constructed enroute to the construction compound. Construction of the site construction compound is occurring.
 - Scenario 04: All access tracks are now constructed. The construction compound is in operation. Deliveries to the site are being made along the Blary Hill route. Construction of turbine foundations and hardstandings is occurring at T1, T3 and T5.
 - Scenario 05: The construction compound is in operation. Turbines are being delivered to site along the Blary Hill route. Turbine erection is occurring at T1, T3 and T5.
 - Scenario 06 (Night-time): Diesel generators for lighting within the construction compound are operational.
- 11.17 The noise-generating equipment assessed for each construction phase is detailed in the Construction Noise Report (Technical Appendix 11.1). It is noted that for much of the working day the noise associated with construction activities would be less than predicted, as the assessment has assumed all equipment is constantly operating at full power and is

located at the closest point to each receptor, whereas in practice equipment load and precise location varies.

- 11.18 To protect the amenity of local residents, construction noise activities would be controlled under The Control of Pollution Act 1974 (COPA) (HM Government, 1974), which is specifically concerned with the control of noise pollution. In particular, Section 60 Part III of the COPA refers to the control of noise on construction sites. It provides legislation by which a Local Authority can control noise from construction sites to prevent disturbance occurring. In addition, it recommends that guidance provided by BS 5228 should be implemented to ensure compliance with Section 60.

Cumulative Construction Noise

- 11.19 There is the potential that construction activities could occur at the same time as the construction for the nearby consented Clachaig Glen, Tangy IV Wind Farms and the proposed Killeen and West Torrisdale Wind Farms, and in this case, it is necessary to consider the impacts that could occur from cumulative construction noise, considering both noise level and duration of exposure.

Operational Noise Methodology

- 11.20 In Scotland, The Onshore Wind Policy Statement 2022 web-based planning advice states:

'The Assessment and Rating of Noise from Wind Farms' (Final Report, Sept 1996, DTI), (ETSU-R-97) provides the framework for the measurement of wind turbine noise, and all applicants are required to follow the framework and use it to assess and rate noise from wind energy developments.'

- 11.21 The web-based document then refers to the Institute of Acoustics 'A Good Practice Guide to the Application of ETSU-R-97' (IOA GPG) stating that it supports:

'the use of ETSU-R-97 when designing potential windfarm schemes, and the monitoring of noise levels from generating sites. The Scottish Government recognises this guide as a useful tool which developers can use in conjunction with ETSU-R-97.'

- 11.22 The web-based document concludes that:

'The Scottish Government is aware that the UK Government has been considering the extent to which ETSU-R-97 may require updating to ensure it is aligned with the potential effects from more modern turbines. The Scottish Government supports this work and we anticipate the results of a short-term review project in due course.'

'Until such time as new guidance is produced, ETSU-R-97 should continue to be followed by applicants and used to assess and rate noise from wind energy developments.'

- 11.23 Therefore, the wind farm operational noise assessment has been undertaken in accordance with ETSU-R-97 and the IOA GPG. ETSU-R-97 provides a robust basis for determining acceptable noise limits for wind farm developments. Consequently, the test

applied to operational noise is whether or not the calculated wind farm noise levels at nearby noise sensitive properties would be below the noise limits derived in accordance with ETSU-R-97.

- 11.24 Limits differ between daytime and night-time periods. The daytime criteria are based upon background noise levels measured during the 'quiet periods of the day' comprising:
- All evenings from 18:00 - 23:00;
 - Saturday afternoons from 13:00 - 18:00; and
 - All day Sunday 07:00 - 23:00.
- 11.25 For the avoidance of doubt the limits set based upon the background data collected during the quiet daytime period apply to the entire daytime period (07:00 – 23:00).
- 11.26 Night-time periods are defined as 23:00 - 07:00 with no differentiation made between weekdays and weekends.
- 11.27 ETSU-R-97 recommends that wind farm noise for the daytime periods should be limited to 5 dB(A) above the prevailing background or a fixed minimum level (FML) within the range 35 - 40 dB $L_{A90,10min}$, whichever is the higher. The precise choice of criterion level within the range 35 - 40 dB(A) depends on a number of factors, including:
- the number of dwellings in the neighbourhood of the wind farm (relatively few dwellings suggest a figure towards the upper end);
 - the effect of noise limits on the number of kWh generated (larger sites tend to suggest a higher figure); and;
 - the duration and level of exposure to any noise.
- 11.28 Following a review of the guidance in ETSU-R-97, the three factors listed above as well as a review of the noise limits for other wind farm developments in the surrounding area, the 'Total ETSU-R-97 Noise Limits' for the proposed development operating in conjunction with other cumulative schemes has been based on a lower FML of 35 dB(A) or background plus 5 dB whichever is the greater during the daytime period and at 43 dB(A) or background plus 5 dB whichever is the greater during the night-time period. This 'Total' limit relates to noise from all wind farm developments in the area.
- 11.29 The daytime 'Site Specific Noise Limits' have been derived based on the lower FML of 35 dB(A), or background plus 5 dB whichever is the greater whilst taking account of the proportion of the noise limit that has been allocated to, or could theoretically be used by, other schemes. Where wind turbine immission from the other wind turbines at a given receptor were found to be at least 10 dB below the Total ETSU-R-97 Noise Limit, it is considered that they will be using a negligible proportion of the limit¹, as such it was considered appropriate to allocate the entire noise limit to the proposed development. For the receptors where turbine predictions were found to be within 10 dB of the Total ETSU-R-97 Noise Limit, apportionment of the Total ETSU-R-97 Noise Limits was undertaken in accordance with current good practice.

¹ For example - 40 dB + 30 dB = 40.4 dB and this is considered to be a negligible change.

- 11.30 For night-time periods the recommended limits are 5 dB(A) above prevailing background or a fixed minimum level of 43 dB $L_{A90,10min}$, whichever is higher whilst taking account of the proportion of the noise limit that has been allocated to, or could theoretically be used by, other schemes.
- 11.31 The exception to the setting of both the daytime and night-time fixed minimum on the noise limits occurs where a property occupier has a financial involvement in the wind farm development where the fixed minimum limit can be increased to 45 dB(A) or a higher permissible limit above background during the daytime and night-time periods.
- 11.32 In addition to ETSU-R-97, the recommendations included in the IOA GPG have been considered in the noise assessment.
- 11.33 The exact model of turbine to be installed on the site will be the result of a future tendering process should consent be granted. Achievement of the Site Specific Noise Limits determined by this assessment will be a key determining factor in the final choice of turbine for the proposed development. Predictions of wind turbine noise for the proposed development were made based upon the sound power level data for a single candidate wind turbine, the Vestas V162 7.2 MW with serrated trailing edge blades, as it is considered representative of the type of turbine that would be installed at the site.
- 11.34 Noise predictions were undertaken using the propagation model contained within Part 2 of International Standard ISO 9613-2, 'Acoustics – Attenuation of sound during propagation outdoors' (ISO, 2024). The model calculates, on an octave band basis, attenuation due to geometric spreading, atmospheric absorption and ground effects. The noise model was set up to provide realistic noise predictions, including mixed ground attenuation ($G=0.5$) and atmospheric attenuation relating to 70 % relative humidity and 10 °C and a receiver height of 4 m.
- 11.35 Typically wind farm noise assessments assume all properties are downwind of all turbines at all times (as this would result in the highest wind turbine noise levels). However, where properties are located in between groups of turbines they cannot be downwind of all turbines simultaneously, so it is appropriate to consider the effect of wind direction on predicted noise levels; the impact of directivity has been considered in the assessment. Further information on the methodology adopted where this condition comes into effect is provided in Section 6.3 of Technical Appendix 11.2.
- 11.36 The wind turbine noise immission levels are based on the $L_{A90,10 \text{ minute}}$ noise indicator in accordance with the recommendations in ETSU-R-97, which were obtained by subtracting 2 dB(A) from the turbine sound power level data (L_{Aeq} indicator).
- 11.37 In line with the IOA GPG, an assessment has been undertaken to determine whether a concave ground profile correction (+3 dB) or barrier correction (-2 dB), is required due to the topography between the turbines and the NSRs. Propagation across a valley (concave ground) increases the number of reflection paths, and in turn, has the potential to increase sound levels at a given receptor. Terrain screening effects (barrier corrections) act as blocking points, subsequently reductions in sound levels at a given receptor can potentially be observed. A concave ground and barrier correction was found to be

required for a number of turbines at a number of receptors as detailed in Annex 6, Technical Appendix 11.2.

- 11.38 More information relating to all the parameters for operational noise discussed above and on other topics such as Amplitude Modulation (AM) and Low Frequency Noise (LFN) has been provided in Technical Appendix 11.2. There is no evidence that LFN has adverse impacts on the health of wind farm neighbours and at the time of writing there is no agreed methodology which can be used to predict the occurrence of AM or an agreed methodology that can be used to determine whether the effects of AM, should it occur, are likely to be significant.

Cumulative Wind Farm Noise

- 11.39 The need for a cumulative noise assessment was considered in accordance with the guidance contained within the IOA GPG. There are a number of operational, consented and proposed wind farm developments within the vicinity of the proposed development; as such, and where required, a cumulative noise assessment was undertaken. The noise assessment was undertaken in three separate stages:
- Stage 1 – establish the Total ETSU-R-97 Noise Limits for each Noise Assessment Location (NAL) using the measured background noise levels;
 - Stage 2 – undertake noise modelling to determine whether noise predictions from the proposed development on its own are within 10 dB of the noise predictions from other wind turbines within the area. Where turbine predictions are within 10 dB then a likely cumulative noise assessment will be undertaken; and
 - Stage 3 – establish the Site Specific Noise Limits for the proposed development (through apportioning the Total ETSU-R-97 Noise Limits) and compare the noise predictions from the proposed development on its own against the Site Specific Noise Limits.
- 11.40 The aim of the operational noise assessment therefore was to establish the Total ETSU-R-97 Noise Limits, determine the likely impacts of the proposed development and other schemes at the nearest NSRs, derive Site Specific Noise Limits, and to demonstrate that the proposed development could meet those limits.
- 11.41 All the turbines modelled in the cumulative noise assessment (Stage 2), are summarised in Annex 6 of Technical Appendix 11.2. Uncertainty in sound power data for the proposed development has been accounted for using the guidance contained within Section 4.2 of the IOA GPG. The location of the wind turbines for the proposed development and the other schemes are shown on Figure 11.2.

Effects Assessed in Full

- 11.42 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:
- Potential noise effects from construction activities at the nearest NSRs;
 - Potential effect of operational wind turbine noise from the proposed development at NSRs located in proximity to the proposed development; and

- Potential effect of operational noise from the proposed development operating concurrently with other operational, consented and proposed (in planning) developments in the area.

Effects Scoped Out

Decommissioning

- 11.43 Activities that occur during the decommissioning of the proposed development are unlikely to produce higher noise levels than those produced during construction and many of the activities will be similar in nature. As such it is assumed that if construction noise levels are predicted to be below the threshold levels then decommissioning noise will also be below the threshold levels.

Vibration

- 11.44 Vibration from wind turbines is low therefore on that basis it was not considered necessary to carry out a specific assessment of perceptible vibration and it has been scoped out of the EIA. However, further information on vibration can be found in Section 3.2 of Appendix 11.2

Study Area

- 11.45 The proposed development is located within a rural location, where existing background noise levels at the NSRs are relatively low.
- 11.46 There are a number of operational, consented and proposed wind farms located in the vicinity of the proposed development, referred to as the cumulative developments (as shown on Figure 11.2 and summarised in Table 1.1 of Technical Appendix 11.2.
- 11.47 Figure 11.2 shows a total of thirteen NALs which are the residential properties assessed in detail in this assessment. The NALs are described later in this chapter in the Assessment of Likely Effects and were selected as these were the closest in any direction.
- 11.48 For the construction noise assessment, noise sensitive receptors in proximity to potential construction activities were also identified following a desk-based assessment. Thirteen Construction Noise Assessment Locations (CNALs) have been selected by TNEI for a detailed assessment as shown in Figure 12.1.

Desk Based Study and Data Sources

- 11.49 Background noise monitoring was previously undertaken at a number of properties proximate to the proposed development as part of the noise assessment work undertaken for Blary Hill Wind Farm (August 2014). Blary Hill is now an operational wind farm located immediately to the west of the proposed development. Due to the number of existing operational wind farms within the area, additional noise monitoring was not undertaken due to the potential influence of operational wind turbine noise on the measured levels. Background noise data previously collected for Blary Hill Wind Farm was re-used to set the Total ETSU-R-97 Noise Limits for the proposed development.

Field Survey

- 11.50 The noise monitoring locations from the Blary Hill noise assessment are shown on Figure 11.2.

Assessment of Significance

Sensitivity

- 11.51 For the purposes of this assessment, residential properties are considered to be noise sensitive receptors and all are considered to be of high sensitivity.

Magnitude

- 11.52 The magnitude of change is not assessed as both the construction and operational noise assessments are based on comparing to a threshold, as described below. The threshold criteria however take account of the existing baseline levels.

Significance of Effects

Criteria for Assessing Significance – Construction Noise

- 11.53 The significance criteria adopted for this assessment are based on Appendix E part E.3.2 of BS5228. It uses a noise metric of $L_{Aeq,T}$, as shown in Table 11.2. The L_{Aeq} is the A-weighted, equivalent continuous sound level in decibels measured over a stated period of time, ($L_{Aeq,T}$) where T is the length of the assessment period (Time).

Table 11.2 Construction Noise Category A Criteria Thresholds

Category A	Criteria Thresholds	
	Criteria Met	Criteria Exceeded
Category A Night-Time (23:00 – 07:00)	$\leq 45\text{dB } L_{Aeq, T}$	$> 45\text{dB } L_{Aeq, T}$
Category A Evenings and Weekends (19:00 – 23:00)	$\leq 55\text{dB } L_{Aeq, T}$	$> 55\text{dB } L_{Aeq, T}$
Category A Daytime (07:00 – 19:00) and Saturdays (07:00 to 13:00)	$\leq 65\text{dB } L_{Aeq, T}$	$> 65\text{dB } L_{Aeq, T}$

- 11.54 It should be noted that exceedance of the threshold levels does not in itself indicate a significant effect, rather, the standard states 'If the site noise level exceeds the appropriate category value, then a potential significant effect is indicated. The assessor then needs to consider other project-specific factors, such as the number of receptors affected and the duration and character of the impact, to determine if there is a significant effect.'

Criteria for Assessing Significance – Operational Noise

- 11.55 Planning Advice Note PAN 1/2011 'Planning and Noise' provides advice on the role of the planning system in helping to prevent and limit the adverse effects of noise. PAN 1/2011 refers to the web-based planning advice on renewable technologies for Onshore Wind Turbines, which states that ETSU-R-97 should be used to assess and rate noise from wind energy developments. ETSU-R-97 does not define significance criteria but describes a framework for the measurement of wind farm noise and gives indicative noise levels considered to offer a reasonable degree of protection to wind farm neighbours, without placing unreasonable restrictions on wind farm development. Achievement of ETSU-R-97 derived noise limits ensures that wind turbine noise will comply with current Government guidance.
- 11.56 In terms of the EIA Regulations, the use of the term “significance” in this EIAR, in relation to operational noise refers to compliance/non-compliance with the ETSU-R-97 derived noise limits. For situations where predicted wind turbine noise meets or is less than the noise limits defined in ETSU-R-97, then the noise effects are deemed not significant. Any breach of the ETSU-R-97 derived noise limits due to the proposed development is deemed to result in a significant effect.
- 11.57 For the purposes of this assessment, residential properties that lawfully exist or have extant planning permission are considered to be NSRs.

Assumptions and Limitations

- 11.58 It has been assumed that the noise data collected during the background noise survey are representative of the typical baseline noise levels at the nearest noise sensitive receptors; the guidance in ETSU-R-97 and the IOA GPG has been followed by suitably experienced Acoustic Consultants to ensure that the data collected is as representative as possible.
- 11.59 A candidate wind turbine has been used for predictions of operational noise from the proposed development whilst the final model of wind turbine to be used may differ from that presented in this assessment, operational noise levels would have to comply with the noise limits.

Baseline Conditions

- 11.60 The proposed development is located within a rural location where existing background noise levels at the noise sensitive receptors are generally considered to be low. The predominant noise sources in the area are wind induced noise (wind passing through vegetation and around buildings), agricultural noise, existing operational wind turbine noise and birdsong.
- 11.61 Tables 11.3 and 11.4 provide a summary of the background noise levels measured during the monitoring undertaken for the noise assessment for Blary Hill in August to October 2011 for the ETSU-R-97 quiet daytime and night-time periods and the shear adjusted data used in this noise assessment.

11.62 From Tables 11.3 and 11.4, it is evident that the shear adjusted datasets are louder than the original Blary Hill prevailing background noise datasets for a given wind speed above 2 ms^{-1} . This is due to the calculated speed up factors having corresponding roughness lengths which are less than the standard roughness length value of 0.05 m. As the adjustment was calculated with 2 months wind speed data rather than the recommended 6 months in the IOA GPG, and with ABC not providing comment on the acceptability of using this data, it has been deemed appropriate to use the original unadjusted prevailing background noise levels from Blary Hill for this noise assessment. This is deemed a cautious approach.

Table 11.3 Summary of Quiet Daytime background noise curves presented in the Blary Hill Wind Farm ES and the shear adjusted values Proposed development(dB(A))

Noise Monitoring Location	Wind Speed (ms^{-1}) as standardised to 10m height											
	1	2	3	4	5	6	7	8	9	10	11	12
The Bungalow (original)	30.2	31.7	32.9	33.8	34.5	35.1	35.7	36.4	37.4	38.7	40.4	42.6
The Bungalow [†] (adjusted)	31.5*	31.5	32.9	33.9	34.7	35.4	36.1	37.1	38.5	40.4	40.4*	40.4*
Kilmalug Cottage (original)	26.2	27.9	29.7	31.6	33.4	35.3	37.3	39.2	41.2	43.1	45.1	45.1
Kilmalug Cottage [†] (adjusted)	27.7*	27.7	29.8	32.0	34.1	36.3	38.4	40.6	42.8	45.1	45.1*	45.1*
Upper Barr Farm (original)	27.2	27.7	28.6	29.7	31.1	32.5	34.0	35.4	36.8	38.0	39.0	39.7
Upper Barr Farm [†] (adjusted)	27.6*	27.6	28.7	30.0	31.6	33.2	34.8	36.4	37.8	39.0	39.0*	39.0*

[†] Dataset has been adjusted to account for the change in shear from the 67 m mast at Blary Hill Wind Farm to a height of 152.5 m at a point within the boundary of the Proposed development.

* Dataset has been flatlined due to unavailability of data at 1, 11 and 12 ms^{-1} resulting from the shear adjustment.

Table 11.4 Summary of Night-time background noise curves presented in the Blary Hill Wind Farm ES and the shear adjusted values Proposed development(dB(A))

Noise Monitoring Location	Wind Speed (ms^{-1}) as standardised to 10m height											
	1	2	3	4	5	6	7	8	9	10	11	12
The Bungalow (original)	29.1	32.3	34.4	35.8	36.7	37.2	37.6	38.2	39.2	40.7	43.1	46.5
The Bungalow [†] (adjusted)	31.9*	31.9	34.5	36.0	36.9	37.4	38.0	38.9	40.5	43.1	43.1*	43.1*

Noise Monitoring Location	Wind Speed (ms ⁻¹) as standardised to 10m height											
	1	2	3	4	5	6	7	8	9	10	11	12
Kilmalauag Cottage (original)	26.1	27.7	29.5	31.5	33.5	35.6	37.6	39.6	41.4	43.1	44.6	45.8
Kilmalauag Cottage [†] (adjusted)	27.5*	27.5	29.6	31.9	34.2	36.5	38.8	40.9	42.8	44.6	44.6*	44.6*
Upper Barr Farm (original)	29.0	29.5	30.3	31.1	32.2	33.3	34.5	35.7	36.8	38.0	39.0	39.9
Upper Barr Farm [†] (adjusted)	29.4*	29.4	30.3	31.3	32.6	33.9	35.2	36.5	37.8	39.0	39.0*	39.0*

[†] Dataset has been adjusted to account for the change in shear from the 67 m mast at Blary Hill Wind Farm to a height of 152.5 m at a point within the boundary of the Proposed development.

* Dataset has been flatlined due to unavailability of data at 1, 11 and 12 ms⁻¹ resulting from the shear adjustment.

Identification and Evaluation of Key Effects

Summary of Noise Assessment Locations

Construction Noise

- 11.63 The Construction Noise Assessment Locations (CNALs) are summarised in Table 11.5 below and are shown on Figure 11.1.

Table 11.5 Summary of Construction Noise Assessment Locations

CNAL	Easting	Northing
CNAL01 - The Bothy	171164	638104
CNAL02 - Amod Farm	170753	638165
CNAL03 - Kilmalauag Cottage	169392	637652
CNAL04 - An Acaill	169035	637342
CNAL05 - Upper Barr Farm	168480	637271
CNAL06 - Skernish Farm	167960	637081
CNAL07 - Ifferdale Cottage	176509	633879
CNAL08 - Glenhead	178526	637070
CNAL09 - Belloch Cottage	167230	637799
CNAL10 - 3 Barr Hill	167052	636648
CNAL11 - Sunnyside Farm	167467	636882

Operational Noise

- 11.64 The thirteen NALs chosen were generally the closest receptors to the proposed development and other wind farm developments. The NALs refer to the position in the curtilage of a property and they were selected as they provided the worst-case noise impact assessment within the area surrounding the proposed development. The NALs are summarised in Table 11.6 below and are shown on Figure 11.2.
- 11.65 Table 11.6 also details which NML has been used to set noise limits for each NAL. For the assessment locations where no background noise measurements were undertaken, noise data collected at proxy locations was used to assess the noise impact at those receptors. For the NALs to the east of the proposed development no suitable proxy monitoring locations were identified therefore the noise limits derived for those NALs do not vary with wind speed. This is deemed a conservative approach.

Table 11.6 Noise Assessment Locations

Noise Assessment Location (NAL)	Easting (m)	Northing (m)	Elevation (m AOD)	Approximate Distance to Nearest Allt Domhain Turbine* (m)	Background Noise Data Used
NAL1 - The Bothy***	171164	638106	73	1906 (T5)	The Bungalow
NAL2 - North Cottage***	171122	638126	73	1951 (T5)	The Bungalow
NAL3 - East Cottage***	171127	638095	74	1927 (T5)	The Bungalow
NAL4 - Arnicle House**	171054	638099	73	1987 (T5)	The Bungalow
NAL5 - Glenview**	171016	638129	70	2036 (T5)	The Bungalow
NAL6 - Amod Farm**	170815	638172	72	2223 (T5)	The Bungalow
NAL7 - Kilmaluag Cottage	169387	637638	65	3327 (T5)	Kilmaluag Cottage
NAL8 - An Acaill	169073	637356	58	3585 (T5)	Kilmaluag Cottage
NAL9 - Upper Barr Farm	168546	637260	76	4098 (T5)	Upper Barr Farm
NAL10 - Skernish Farm	167971	637089	74	4661 (T5)	Upper Barr Farm
NAL11 - Ifferdale Cottage	176507	633882	44	4039 (T9)	N/A
NAL12 - Glenhead	178529	637070	52	4258 (T2)	N/A
NAL13 - Rhonadale	178651	639004	11	4620 (T2)	N/A

* Please note the distances to nearest turbines quoted above may differ from those reported elsewhere. Distances for the noise assessment are taken from the nearest turbine to the closest edge of the amenity area (usually the garden).

** The occupiers are financially involved with the proposed development.

*** The occupiers have been assessed as being both financially involved and not financially involved with the proposed development.

Construction Effects

- 11.66 The construction noise impact results summarised in Table 11.7 below show that the predicted construction noise levels are below the Category A daytime Threshold Level at all CNALs for all assessment scenarios.
- 11.67 Although no construction activities are proposed outside of daytime hours, the predicted noise levels at most CNALs are well below the evening and weekend threshold level of 55 dB(A), except during Scenario 01 and 02, during the construction of the two access route options. During Scenario 01, which considers the improvement of the existing Blary Hill access route, at CNALs 04 – 06, and CNALs 10 – 11, the maximum predicted noise level is 58 dB(A). During Scenario 02, the predicted highest noise level is 58 dB(A) at CNAL09, which is attributable to the construction of the junction off the A83.
- 11.68 Exceedance of the evening and weekend threshold level at these NALs indicates that there is a potential for significant effects to occur at some NSRs while the access tracks and junctions are constructed. Therefore, to mitigate these effects construction of the access tracks and junctions close to these NALs should only be carried out within the daytime period, as defined in BS 5228.
- 11.69 The predicted noise levels during the night-time scenario are well below the night-time threshold level of 45 dB(A) at all CNALs.
- 11.70 Therefore, subject to access track upgrades only occurring during the daytime, there would be **no significant effects** from construction noise at the nearby noise sensitive receptors.

Table 11.7 Predicted Construction Noise Immission Levels

CNAL	Category A Threshold dB L _{Aeq, t}			Immission Level, dB L _{Aeq, t} for each Scenario					
	Daytime weekdays and Saturday Mornings*	Evening weekdays, Saturday afternoon and Sundays**	Night-Time ***	S1	S2	S3	S4	S5	S6
CNAL01	65	55	45	37	41	35	33	33	14
CNAL02	65	55	45	35	44	31	32	32	13
CNAL03	65	55	45	40	38	24	33	33	7

CNAL	Category A Threshold dB LAeq, t			Immission Level, dB LAeq, t for each Scenario					
	Daytime weekdays and Saturday Mornings*	Evening weekdays, Saturday afternoon and Sundays**	Night-Time ***	S1	S2	S3	S4	S5	S6
CNAL04	65	55	45	55	36	23	47	47	7
CNAL05	65	55	45	56	35	21	48	48	5
CNAL06	65	55	45	55	36	17	47	47	2
CNAL07	65	55	45	6	13	7	15	14	0
CNAL08	65	55	45	6	7	15	19	19	1
CNAL09	65	55	45	28	58	18	24	24	2
CNAL10	65	55	45	58	34	18	54	54	2
CNAL11	65	55	45	58	31	19	50	50	3

11.71 Full details of the modelling and assessment can be found in the Construction Noise Report (Technical Appendix 11.1).

Potential Cumulative Construction Effects

11.72 The construction noise assessment predicts that noise levels may exceed the evening and weekend threshold levels for a short period of time as either of the access route options are constructed/ upgraded. This occurs at CNALs 4 - 6 and 10 – 11 during Scenario 1, or CNAL9 during Scenario 2. For the remainder of the construction phases, all construction activities are likely to be considerably further from these CNALs and construction noise levels attributable to the Proposed development will be much lower, such that cumulative construction noise levels could not result in an exceedance of the threshold levels. Additionally, the duration of the construction works, and therefore associated impacts, will be short term in nature. Accordingly, there would be **no significant cumulative construction noise effects**.

Operational Effects

Setting the Total ETSU-R-97 Noise Limits (Stage 1)

11.73 Based on the prevailing background noise levels, the Total ETSU-R-97 Noise Limits have been established for each of the NALs detailed in Table 11.6 above. The Total ETSU-R-97 Noise Limits are as detailed in Table 11.8 and Table 11.9 below and have been based on a fixed minimum of 35 dB (Daytime) or background plus 5 dB and 43 dB (Night-time) or background plus 5 dB whichever is the greater. For NALs1-3, Table 11.8 and Table 11.9 below contain two sets of limits which have been derived based on the occupiers being financially involved or not with the proposed development.

Table 11.8 Total ETSU-R-97 Noise Limits - Daytime

NAL	Wind Speed (ms ⁻¹) as standardised to 10m height											
	1	2	3	4	5	6	7	8	9	10	11	12
NAL1 - The Bothy*	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.4	45.4	45.4
NAL1 - The Bothy	35.2	36.7	37.9	38.8	39.5	40.1	40.7	41.4	42.4	43.7	45.4	47.6
NAL2 - North Cottage*	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.4	45.4	45.4
NAL2 - North Cottage	35.2	36.7	37.9	38.8	39.5	40.1	40.7	41.4	42.4	43.7	45.4	47.6
NAL3 - East Cottage*	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.4	45.4	45.4
NAL3 - East Cottage	35.2	36.7	37.9	38.8	39.5	40.1	40.7	41.4	42.4	43.7	45.4	47.6
NAL4 - Arnicle House*	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.4	45.4	45.4
NAL5 - Glenview*	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.4	45.4	45.4
NAL6 - Amod Farm*	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.4	45.4	45.4
NAL7 - Kilmaluag Cottage	35.0	35.0	35.0	37.0	39.1	41.3	43.4	45.6	47.8	50.1	50.1	50.1
NAL8 - An Acaill	35.0	35.0	35.0	37.0	39.1	41.3	43.4	45.6	47.8	50.1	50.1	50.1
NAL9 - Upper Barr Farm	35.0	35.0	35.0	35.0	36.6	38.2	39.8	41.4	42.8	44.0	44.0	44.0
NAL10 - Skernish Farm	35.0	35.0	35.0	37.0	39.1	41.3	43.4	45.6	47.8	50.1	50.1	50.1
NAL11 - Ifferdale Cottage	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
NAL12 - Glenhead	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
NAL13 - Rhonadale	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0

*occupiers are financially involved with the Proposed development

Table 11.9 Total ETSU-R-97 Noise Limits – Night-time

NAL	Wind Speed (ms-1) as standardised to 10m height											
	1	2	3	4	5	6	7	8	9	10	11	12
NAL1 - The Bothy*	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.5	48.1	48.1	48.1
NAL1 - The Bothy	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	46.0	48.0	52.0
NAL2 - North Cottage*	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.5	48.1	48.1	48.1
NAL2 - North Cottage	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	46.0	48.0	52.0
NAL3 - East Cottage*	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.5	48.1	48.1	48.1
NAL3 - East Cottage	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	46.0	48.0	52.0
NAL4 - Arnicle House*	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.5	48.1	48.1	48.1
NAL5 - Glenview*	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.5	48.1	48.1	48.1
NAL6 - Amod Farm*	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.5	48.1	48.1	48.1
NAL7 - Kilmaluag Cottage	43.0	43.0	43.0	43.0	43.0	43.0	43.8	45.9	47.8	49.6	49.6	49.6
NAL8 - An Acaill	43.0	43.0	43.0	43.0	43.0	43.0	43.8	45.9	47.8	49.6	49.6	49.6
NAL9 - Upper Barr Farm	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	44.0	44.0
NAL10 - Skernish Farm	43.0	43.0	43.0	43.0	43.0	43.0	43.8	45.9	47.8	49.6	49.6	49.6
NAL11 - Ifferdale Cottage	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
NAL12 - Glenhead	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
NAL13 - Rhonadale	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0

*occupiers are financially involved with the Proposed development

Predicting the Likely Effects and the Requirement for a Cumulative Noise Assessment (Stage 2)

- 11.74 A comparison was undertaken of the predicted wind turbine noise immission levels from the proposed development alongside all other schemes at each of the identified noise sensitive receptors in order to demonstrate whether predictions were within 10 dB of each other. The results showed (see Table 6.5 of Technical Appendix 11.2) that a cumulative assessment was required at nine NALs (NALs 1-7, 9, and 13). Predicted cumulative noise levels were compared to the Total ETSU-R-97 Noise Limits at the nine NALs. A second likely cumulative noise assessment was undertaken at NALs 1–3 in the event they are not to be considered financially involved with the proposed development.
- 11.75 As shown in Table 11.10 and Table 11.11, the predicted cumulative wind turbine noise immission levels are below the Total ETSU-R-97 Noise Limits under all conditions and at all NALs during both daytime and night-time periods. As such, there would be **no significant effects**. These results are also shown on graphical figures as Figures A1.2. For some turbine models considered in the cumulative assessment noise data was not available for wind speeds less than 5 ms⁻¹ therefore no cumulative predictions are included for wind speeds less than 5 ms⁻¹.
- 11.76 However, as detailed in Tables 11.12 and 11.13, where NALs 1-3 are not considered financially involved, a daytime exceedance of 0.1 dB at 7 ms⁻¹ is predicted at NALs 1 and 3. These exceedances would result in **significant effects**.

Table 11.10 ETSU-R-97 Compliance Table – Likely Cumulative Noise – Daytime

Location		Wind Speed (ms ⁻¹) as standardised to 10m height											
		1	2	3	4	5	6	7	8	9	10	11	12
NAL1	Total ETSU-R-97 Noise Limit L _{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.4	47.6
	Cumulative Predictions L _{A90}	-	-	-	-	36.5	39.6	40.8	41.2	41.3	41.4	41.4	41.4
	Exceedance Level	-	-	-	-	-8.5	-5.4	-4.2	-3.8	-3.7	-3.6	-4.0	-6.2
NAL2	Total ETSU-R-97 Noise Limit L _{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.4	47.6
	Cumulative Predictions L _{A90}	-	-	-	-	36.3	39.4	40.6	41.0	41.1	41.2	41.2	41.2
	Exceedance Level	-	-	-	-	-8.7	-5.6	-4.4	-4.0	-3.9	-3.8	-4.2	-6.4
NAL3	Total ETSU-R-97 Noise Limit L _{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.4	47.6
	Cumulative Predictions L _{A90}	-	-	-	-	36.5	39.6	40.8	41.2	41.3	41.4	41.4	41.4
	Exceedance Level	-	-	-	-	-8.5	-5.4	-4.2	-3.8	-3.7	-3.6	-4.0	-6.2
NAL4	Total ETSU-R-97 Noise Limit L _{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.4	47.6
	Cumulative Predictions L _{A90}	-	-	-	-	36.3	39.5	40.6	41.0	41.2	41.2	41.2	41.2
	Exceedance Level	-	-	-	-	-8.7	-5.5	-4.4	-4.0	-3.8	-3.8	-4.2	-6.4
NAL5	Total ETSU-R-97 Noise Limit L _{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.4	47.6
	Cumulative Predictions L _{A90}	-	-	-	-	36.1	39.2	40.4	40.8	40.9	41.0	41.0	41.0

Location		Wind Speed (ms ⁻¹) as standardised to 10m height											
		1	2	3	4	5	6	7	8	9	10	11	12
	Exceedance Level	-	-	-	-	-8.9	-5.8	-4.6	-4.2	-4.1	-4.0	-4.4	-6.6
NAL6	Total ETSU-R-97 Noise Limit L _{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.4	47.6
	Cumulative Predictions L _{A90}	-	-	-	-	36.5	39.7	40.8	41.3	41.5	41.5	41.5	41.6
	Exceedance Level	-	-	-	-	-8.5	-5.3	-4.2	-3.7	-3.5	-3.5	-3.9	-6.0
NAL7	Total ETSU-R-97 Noise Limit L _{A90}	35.0	35.0	35.0	36.6	38.4	40.3	42.3	44.2	46.2	48.1	50.1	50.1
	Cumulative Predictions L _{A90}	-	-	-	-	33.2	36.7	38.2	38.9	39.5	39.5	39.5	39.5
	Exceedance Level	-	-	-	-	-5.2	-3.6	-4.1	-5.3	-6.7	-8.6	-10.6	-10.6
NAL9	Total ETSU-R-97 Noise Limit L _{A90}	35.0	35.0	35.0	35.0	36.1	37.5	39.0	40.4	41.8	43.0	44.0	44.7
	Cumulative Predictions L _{A90}	-	-	-	-	32.4	36.1	37.6	38.5	39.2	39.2	39.2	39.2
	Exceedance Level	-	-	-	-	-3.7	-1.4	-1.4	-1.9	-2.6	-3.8	-4.8	-5.5
NAL13	Total ETSU-R-97 Noise Limit L _{A90}	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
	Cumulative Predictions L _{A90}	-	-	-	-	26.0	28.9	30.0	30.3	30.4	30.5	30.6	30.6
	Exceedance Level	-	-	-	-	-9.0	-6.1	-5.0	-4.7	-4.6	-4.5	-4.4	-4.4

Table 11.11 ETSU-R-97 Compliance Table – Likely Cumulative Noise – Night-time

Location		Wind Speed (ms ⁻¹) as standardised to 10m height											
		1	2	3	4	5	6	7	8	9	10	11	12
NAL1	Total ETSU-R-97 Noise Limit L _{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	48.1	51.5
	Cumulative Predictions L _{A90}	-	-	-	-	36.5	39.6	40.8	41.2	41.3	41.4	41.4	41.4
	Exceedance Level	-	-	-	-	-8.5	-5.4	-4.2	-3.8	-3.7	-4.3	-6.7	-10.1
NAL2	Total ETSU-R-97 Noise Limit L _{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	48.1	51.5
	Cumulative Predictions L _{A90}	-	-	-	-	36.3	39.4	40.6	41.0	41.1	41.2	41.2	41.2
	Exceedance Level	-	-	-	-	-8.7	-5.6	-4.4	-4.0	-3.9	-4.5	-6.9	-10.3
NAL3	Total ETSU-R-97 Noise Limit L _{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	48.1	51.5
	Cumulative Predictions L _{A90}	-	-	-	-	36.5	39.6	40.8	41.2	41.3	41.4	41.4	41.4
	Exceedance Level	-	-	-	-	-8.5	-5.4	-4.2	-3.8	-3.7	-4.3	-6.7	-10.1
NAL4	Total ETSU-R-97 Noise Limit L _{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	48.1	51.5
	Cumulative Predictions L _{A90}	-	-	-	-	36.3	39.5	40.6	41.0	41.2	41.2	41.2	41.2
	Exceedance Level	-	-	-	-	-8.7	-5.5	-4.4	-4.0	-3.8	-4.5	-6.9	-10.3
NAL5	Total ETSU-R-97 Noise Limit L _{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	48.1	51.5
	Cumulative Predictions L _{A90}	-	-	-	-	36.1	39.2	40.4	40.8	40.9	41.0	41.0	41.0
	Exceedance Level	-	-	-	-	-8.9	-5.8	-4.6	-4.2	-4.1	-4.7	-7.1	-10.5
NAL6	Total ETSU-R-97 Noise Limit L _{A90}	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.7	48.1	51.5

Location		Wind Speed (ms ⁻¹) as standardised to 10m height											
		1	2	3	4	5	6	7	8	9	10	11	12
	Cumulative Predictions L _{A90}	-	-	-	-	36.5	39.7	40.8	41.3	41.5	41.5	41.5	41.6
	Exceedance Level	-	-	-	-	-8.5	-5.3	-4.2	-3.7	-3.5	-4.2	-6.6	-9.9
NAL7	Total ETSU-R-97 Noise Limit L _{A90}	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.6	46.4	48.1	49.6	50.8
	Cumulative Predictions L _{A90}	-	-	-	-	33.2	36.7	38.2	38.9	39.5	39.5	39.5	39.5
	Exceedance Level	-	-	-	-	-9.8	-6.3	-4.8	-5.7	-6.9	-8.6	-10.1	-11.3
NAL9	Total ETSU-R-97 Noise Limit L _{A90}	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.0	44.9
	Cumulative Predictions L _{A90}	-	-	-	-	32.4	36.1	37.6	38.5	39.2	39.2	39.2	39.2
	Exceedance Level	-	-	-	-	-10.6	-6.9	-5.4	-4.5	-3.8	-3.8	-4.8	-5.7
NAL13	Total ETSU-R-97 Noise Limit L _{A90}	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
	Cumulative Predictions L _{A90}	-	-	-	-	26.0	28.9	30.0	30.3	30.4	30.5	30.6	30.6
	Exceedance Level	-	-	-	-	-17.0	-14.1	-13.0	-12.7	-12.6	-12.5	-12.4	-12.4

Table 11.12 ETSU-R-97 Compliance Table – Likely Cumulative Noise – Daytime (NALs 1-3 not financially involved)

Location		Wind Speed (ms ⁻¹) as standardised to 10m height											
		1	2	3	4	5	6	7	8	9	10	11	12
NAL1	Total ETSU-R-97 Noise Limit L _{A90}	35.2	36.7	37.9	38.8	39.5	40.1	40.7	41.4	42.4	43.7	45.4	47.6
	Cumulative Predictions L _{A90}	-	-	-	-	36.5	39.6	40.8	41.2	41.3	41.4	41.4	41.4
	Exceedance Level	-	-	-	-	-3.0	-0.5	0.1	-0.2	-1.1	-2.3	-4.0	-6.2
NAL2	Total ETSU-R-97 Noise Limit L _{A90}	35.2	36.7	37.9	38.8	39.5	40.1	40.7	41.4	42.4	43.7	45.4	47.6
	Cumulative Predictions L _{A90}	-	-	-	-	36.3	39.4	40.6	41.0	41.1	41.2	41.2	41.2
	Exceedance Level	-	-	-	-	-3.2	-0.7	-0.1	-0.4	-1.3	-2.5	-4.2	-6.4
NAL3	Total ETSU-R-97 Noise Limit L _{A90}	35.2	36.7	37.9	38.8	39.5	40.1	40.7	41.4	42.4	43.7	45.4	47.6
	Cumulative Predictions L _{A90}	-	-	-	-	36.5	39.6	40.8	41.2	41.3	41.4	41.4	41.4
	Exceedance Level	-	-	-	-	-3.0	-0.5	0.1	-0.2	-1.1	-2.3	-4.0	-6.2

Table 11.13 ETSU-R-97 Compliance Table – Likely Cumulative Noise – Night-time (NALs 1-3 not financially involved)

Location		Wind Speed (ms ⁻¹) as standardised to 10m height											
		1	2	3	4	5	6	7	8	9	10	11	12
NAL1	Total ETSU-R-97 Noise Limit L _{A90}	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.2	44.2	45.7	48.1	51.5
	Cumulative Predictions L _{A90}	-	-	-	-	36.5	39.6	40.8	41.2	41.3	41.4	41.4	41.4
	Exceedance Level	-	-	-	-	-6.5	-3.4	-2.2	-2.0	-2.9	-4.3	-6.7	-10.1

Location		Wind Speed (ms ⁻¹) as standardised to 10m height											
		1	2	3	4	5	6	7	8	9	10	11	12
NAL2	Total ETSU-R-97 Noise Limit L _{A90}	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.2	44.2	45.7	48.1	51.5
	Cumulative Predictions L _{A90}	-	-	-	-	36.3	39.4	40.6	41.0	41.1	41.2	41.2	41.2
	Exceedance Level	-	-	-	-	-6.7	-3.6	-2.4	-2.2	-3.1	-4.5	-6.9	-10.3
NAL3	Total ETSU-R-97 Noise Limit L _{A90}	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.2	44.2	45.7	48.1	51.5
	Cumulative Predictions L _{A90}					36.5	39.6	40.8	41.2	41.3	41.4	41.4	41.4
	Exceedance Level					-6.5	-3.4	-2.2	-2.0	-2.9	-4.3	-6.7	-10.1

Operational Phase- Derivation of Site Specific Noise Limits for the Proposed Wind Farm (Stage 3)

- 11.77 In order to protect residential amenity, in accordance with ETSU-R-97 cumulatively, all wind farms (including the proposed development) should operate within the Total ETSU-R-97 Noise Limits, as demonstrated in Stage 2 above.
- 11.78 Another recommendation is that each wind farm should operate within their own limit, whilst the cumulative situation of Stage 2 is still met. To allow this to occur, a set of Site Specific Noise Limits for the proposed development are required and these have been derived for each NAL. The apportionment options provided in the IOA GPG were considered to determine the most appropriate option for each NAL as summarised in Table 6.8 of in Technical Appendix 11.2.
- 11.79 The Site Specific Noise Limits and noise predictions for the proposed development on its own, based on a Vestas V162 7.2 MW with serrated trailing edge blades, are summarised in Table 11.14 and Table 11.15 below, and additionally in Table 11.16 and Table 11.17 if NALs 1-3 are to be considered non-financially involved with the proposed development.
- 11.80 The results show that the predicted wind turbine noise levels from the proposed development operating on its own meet the Site Specific Noise Limits under all conditions at NALs during the daytime and night-time period, should NALs 1-3 be considered financially involved. As such there would be **no significant effects**.
- 11.81 If NALs 1-3 are not financially involved with the proposed development then exceedances of up to 2.4 dB at NAL1, 2.2 dB at NAL2, and 2.3 dB at NAL3, within the windspeed range 6 to 8 ms⁻¹ are predicted during the daytime period. As such there would be **significant effects prior to any mitigation**.

Table 11.14 Site Specific Noise Limit Compliance Table – Daytime

Location		Wind Speed (ms ⁻¹) as standardised to 10m height											
		1	2	3	4	5	6	7	8	9	10	11	12
NAL1	Site Specific Noise Limit L _{A90}	45.0	45.0	45.0	45.0	44.3	43.4	42.9	42.5	42.3	42.3	43.0	46.3
	Predictions L _{A90}	-	-	22.9	24.8	28.3	31.7	33.1	33.1	33.1	33.1	33.1	33.1
	Exceedance Level	-	-	-22.1	-20.2	-16.0	-11.7	-9.8	-9.4	-9.2	-9.2	-9.9	-13.2
NAL2	Site Specific Noise Limit L _{A90}	45.0	45.0	45.0	45.0	44.3	43.5	43.0	42.7	42.6	42.5	43.2	46.4
	Predictions L _{A90}	-	-	22.7	24.6	28.1	31.4	32.9	32.9	32.9	32.9	32.9	32.9
	Exceedance Level	-	-	-22.3	-20.4	-16.2	-12.1	-10.1	-9.8	-9.7	-9.6	-10.3	-13.5
NAL3	Site Specific Noise Limit L _{A90}	45.0	45.0	45.0	45.0	44.3	43.4	42.9	42.5	42.4	42.3	43.1	46.3
	Predictions L _{A90}	-	-	22.8	24.7	28.2	31.5	33.0	33.0	33.0	33.0	33.0	33.0
	Exceedance Level	-	-	-22.2	-20.3	-16.1	-11.9	-9.9	-9.5	-9.4	-9.3	-10.1	-13.3
NAL4	Site Specific Noise Limit L _{A90}	45.0	45.0	45.0	45.0	44.3	43.5	43.0	42.6	42.5	42.4	43.1	46.3
	Predictions L _{A90}	-	-	22.5	24.4	27.8	31.2	32.7	32.7	32.7	32.7	32.7	32.7
	Exceedance Level	-	-	-22.5	-20.6	-16.5	-12.3	-10.3	-9.9	-9.8	-9.7	-10.4	-13.6
NAL5	Site Specific Noise Limit L _{A90}	45.0	45.0	45.0	45.0	44.4	43.6	43.1	42.8	42.7	42.7	43.3	46.4
	Predictions L _{A90}	-	-	22.3	24.1	27.6	31.0	32.5	32.5	32.5	32.5	32.5	32.5
	Exceedance Level	-	-	-22.7	-20.9	-16.8	-12.6	-10.6	-10.3	-10.2	-10.2	-10.8	-13.9
NAL6	Site Specific Noise Limit L _{A90}	45.0	45.0	45.0	45.0	44.3	43.3	42.7	42.3	42.1	42.0	42.7	46.2
	Predictions L _{A90}	-	-	21.4	23.2	26.7	30.1	31.6	31.6	31.6	31.6	31.6	31.6
	Exceedance Level	-	-	-23.6	-21.8	-17.6	-13.2	-11.1	-10.7	-10.5	-10.4	-11.1	-14.6
NAL7	Site Specific Noise Limit L _{A90}	35.0	35.0	35.0	36.6	36.5	37.2	39.6	42.2	44.8	47.3	49.6	49.6
	Predictions L _{A90}	-	-	18.2	20.0	23.5	26.9	28.4	28.4	28.4	28.4	28.4	28.4
	Exceedance Level	-	-	-16.8	-16.6	-13.0	-10.3	-11.2	-13.8	-16.4	-18.9	-21.2	-21.2
NAL9	Site Specific Noise Limit L _{A90}	35.0	35.0	35.0	35.0	32.9	27.9	29.0	32.1	35.9	39.4	41.4	42.6
	Predictions L _{A90}	-	-	16.0	17.9	21.4	24.8	26.3	26.3	26.3	26.3	26.3	26.3
	Exceedance Level	-	-	-19.0	-17.1	-11.5	-3.1	-2.7	-5.8	-9.6	-13.1	-15.1	-16.3
NAL13	Site Specific Noise Limit L _{A90}	34.1	34.1	34.1	34.1	34.1	33.2	32.5	32.3	32.1	32.0	25.0	25.0
	Predictions L _{A90}	-	-	10.7	12.5	16.0	19.4	20.9	20.9	20.9	20.9	20.9	20.9
	Exceedance Level	-	-	-23.4	-21.6	-18.1	-13.8	-11.6	-11.4	-11.2	-11.1	-4.1	-4.1

Table 11.15 Site Specific Noise Limit Compliance Table – Night-time

Location		Wind Speed (ms ⁻¹) as standardised to 10m height											
		1	2	3	4	5	6	7	8	9	10	11	12
NAL1	Site Specific Noise Limit LA90	45.0	45.0	45.0	45.0	44.3	43.4	42.9	42.5	42.3	43.6	47.0	51.0
	Predictions LA90	-	-	22.9	24.8	28.3	31.7	33.1	33.1	33.1	33.1	33.1	33.1
	Exceedance Level	-	-	-22.1	-20.2	-16.0	-11.7	-9.8	-9.4	-9.2	-10.5	-13.9	-17.9
NAL2	Site Specific Noise Limit LA90	45.0	45.0	45.0	45.0	44.3	43.5	43.0	42.7	42.6	43.7	47.1	51.0
	Predictions LA90	-	-	22.7	24.6	28.1	31.4	32.9	32.9	32.9	32.9	32.9	32.9
	Exceedance Level	-	-	-22.3	-20.4	-16.2	-12.1	-10.1	-9.8	-9.7	-10.8	-14.2	-18.1
NAL3	Site Specific Noise Limit LA90	45.0	45.0	45.0	45.0	44.3	43.4	42.9	42.5	42.4	43.6	47.0	51.0
	Predictions LA90	-	-	22.8	24.7	28.2	31.5	33.0	33.0	33.0	33.0	33.0	33.0
	Exceedance Level	-	-	-22.2	-20.3	-16.1	-11.9	-9.9	-9.5	-9.4	-10.6	-14.0	-18.0
NAL4	Site Specific Noise Limit LA90	45.0	45.0	45.0	45.0	44.3	43.5	43.0	42.6	42.5	43.6	47.0	51.0
	Predictions LA90	-	-	22.5	24.4	27.8	31.2	32.7	32.7	32.7	32.7	32.7	32.7
	Exceedance Level	-	-	-22.5	-20.6	-16.5	-12.3	-10.3	-9.9	-9.8	-10.9	-14.3	-18.3
NAL5	Site Specific Noise Limit LA90	45.0	45.0	45.0	45.0	44.4	43.6	43.1	42.8	42.7	43.8	47.1	51.1
	Predictions LA90	-	-	22.3	24.1	27.6	31.0	32.5	32.5	32.5	32.5	32.5	32.5
	Exceedance Level	-	-	-22.7	-20.9	-16.8	-12.6	-10.6	-10.3	-10.2	-11.3	-14.6	-18.6
NAL6	Site Specific Noise Limit LA90	45.0	45.0	45.0	45.0	44.3	43.3	42.7	42.3	42.1	43.3	46.9	51.0
	Predictions LA90	-	-	21.4	23.2	26.7	30.1	31.6	31.6	31.6	31.6	31.6	31.6
	Exceedance Level	-	-	-23.6	-21.8	-17.6	-13.2	-11.1	-10.7	-10.5	-11.7	-15.3	-19.4
NAL7	Site Specific Noise Limit LA90	43.0	43.0	43.0	43.0	42.4	41.6	40.9	42.9	45.1	47.3	49.0	50.4
	Predictions LA90	-	-	18.2	20.0	23.5	26.9	28.4	28.4	28.4	28.4	28.4	28.4
	Exceedance Level	-	-	-24.8	-23.0	-18.9	-14.7	-12.5	-14.5	-16.7	-18.9	-20.6	-22.0
NAL9	Site Specific Noise Limit LA90	43.0	43.0	43.0	43.0	42.5	41.7	41.0	40.3	39.4	39.4	41.4	42.9
	Predictions LA90	-	-	16.0	17.9	21.4	24.8	26.3	26.3	26.3	26.3	26.3	26.3
	Exceedance Level	-	-	-27.0	-25.1	-21.1	-16.9	-14.7	-14.0	-13.1	-13.1	-15.1	-16.6
NAL13	Site Specific Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
	Predictions LA90	-	-	10.7	12.5	16.0	19.4	20.9	20.9	20.9	20.9	20.9	20.9
	Exceedance Level	-	-	-32.3	-30.5	-27.0	-23.6	-22.1	-22.1	-22.1	-22.1	-22.1	-22.1

Table 11.16 Site Specific Noise Limit Compliance Table – Daytime (NALs 1-3 not financially involved)

Location		Wind Speed (ms ⁻¹) as standardised to 10m height											
		1	2	3	4	5	6	7	8	9	10	11	12
NAL1	Site Specific Noise Limit L _{A90}	35.2	36.7	37.9	38.8	36.2	30.1	30.7	31.4	34.7	39.5	43.0	46.3
	Predictions L _{A90}	-	-	22.9	24.8	28.3	31.7	33.1	33.1	33.1	33.1	33.1	33.1
	Exceedance Level	-	-	-15.0	-14.0	-7.9	1.6	2.4	1.7	-1.6	-6.4	-9.9	-13.2
NAL2	Site Specific Noise Limit L _{A90}	35.2	36.7	37.9	38.8	36.4	30.5	30.7	31.4	35.9	39.8	43.2	46.4
	Predictions L _{A90}	-	-	22.7	24.6	28.1	31.4	32.9	32.9	32.9	32.9	32.9	32.9
	Exceedance Level	-	-	-15.2	-14.2	-8.3	0.9	2.2	1.5	-3.0	-6.9	-10.3	-13.5
NAL3	Site Specific Noise Limit L _{A90}	35.2	36.7	37.9	38.8	36.2	30.1	30.7	31.4	35.1	39.5	43.1	46.3
	Predictions L _{A90}	-	-	22.8	24.7	28.2	31.5	33.0	33.0	33.0	33.0	33.0	33.0
	Exceedance Level	-	-	-15.1	-14.1	-8.0	1.4	2.3	1.6	-2.1	-6.5	-10.1	-13.3

Table 11.17 Site Specific Noise Limit Compliance Table – Night-time (NALs 1-3 not financially involved)

Location		Wind Speed (ms ⁻¹) as standardised to 10m height											
		1	2	3	4	5	6	7	8	9	10	11	12
NAL1	Site Specific Noise Limit L _{A90}	43.0	43.0	43.0	43.0	41.8	40.2	38.8	38.5	40.7	43.6	47.0	51.0
	Predictions L _{A90}	-	-	22.9	24.8	28.3	31.7	33.1	33.1	33.1	33.1	33.1	33.1
	Exceedance Level	-	-	-20.1	-18.2	-13.5	-8.5	-5.7	-5.4	-7.6	-10.5	-13.9	-17.9
NAL2	Site Specific Noise Limit L _{A90}	43.0	43.0	43.0	43.0	41.9	40.3	39.1	38.9	41.1	43.7	47.1	51.0
	Predictions L _{A90}	-	-	22.7	24.6	28.1	31.4	32.9	32.9	32.9	32.9	32.9	32.9
	Exceedance Level	-	-	-20.3	-18.4	-13.8	-8.9	-6.2	-6.0	-8.2	-10.8	-14.2	-18.1
NAL3	Site Specific Noise Limit L _{A90}	43.0	43.0	43.0	43.0	41.8	40.2	38.8	38.5	40.9	43.6	47.0	51.0
	Predictions L _{A90}	-	-	22.8	24.7	28.2	31.5	33.0	33.0	33.0	33.0	33.0	33.0
	Exceedance Level	-	-	-20.2	-18.3	-13.6	-8.7	-5.8	-5.5	-7.9	-10.6	-14.0	-18.0

Mitigation Measures and Monitoring

Construction

- 11.82 No significant effects resulting from construction noise are predicted. Nevertheless, a range of good practice measures would be detailed in a Construction Environmental Management Plan (CEMP) and employed to minimise noise impacts.
- 11.83 Good site practices would be implemented to minimise the likely effects to a minimum. Section 8 of BS5228 recommends a number of simple control measures as summarised below that would be employed onsite:

- Keep local residents informed of the proposed working schedule, where appropriate, including the times and duration of any abnormally noisy activity that may cause concern;
- Ensure that any extraordinary site work continuing throughout 24 hours of a day (for example, crane operations lifting components onto the tower) would be programmed, when appropriate, so that haulage vehicles would not arrive at or leave the site between 19:00 and 07:00, with the exception of abnormal loads that would be scheduled to avoid significant traffic flows;
- Ensure all vehicles and mechanical plant would be fitted with effective exhaust silencers and be subject to programmed maintenance;
- Select inherently quiet plant where appropriate - all major compressors would be 'sound reduced' models fitted with properly lined and sealed acoustic covers, which would be kept closed whenever the machines are in use;
- Ensure all ancillary pneumatic percussive tools would be fitted with mufflers or silencers of the type recommended by the manufacturers;
- Instruct that machines would be shut down between work periods or throttled down to a minimum;
- Regularly maintain all equipment used on site, including maintenance related to noise emissions;
- Vehicles would be loaded carefully to ensure minimal drop heights so as to minimise noise during this operation; and
- Ensure all ancillary plant such as generators and pumps would be positioned so as to cause minimum noise disturbance and if necessary, temporary acoustic screens or enclosures should be provided.

Operation

- 11.84 No significant operational effects are predicted, therefore no additional mitigation measures are required.

Cumulative Effects

- 11.85 No significant cumulative effects during construction are predicted, therefore no additional mitigation measures are required.

Residual Effects

Construction

- 11.86 Predicted wind farm construction noise levels are below the assessment criteria at all receptors, for all phases of construction. Due to the low background noise levels at some locations, elements of construction noise may be audible at the closest residential receptor for certain periods during the construction phases. There would be **no significant residual effects from construction noise**.

Operation

- 11.87 For the purpose of demonstrating the effectiveness of a potential noise mitigation measure for the candidate wind turbine considered here, the predicted noise levels in Tables 11.18 and 11.19 have been reduced to ensure that the limits are met, this would be achieved by the adoption of low noise modes, but this would only be required for a limited range of wind speeds and directions.
- 11.88 These results are also shown on graphical figures as Figures A1.3 and A1.5 in Annex 1 of Technical Appendix 11.2.

Table 11.18 ETSU-R-97 Compliance Table – Likely Cumulative Noise – Daytime (NALs 1-3 not financially involved)

Location		Wind Speed (ms ⁻¹) as standardised to 10m height											
		1	2	3	4	5	6	7	8	9	10	11	12
NAL1	Total ETSU-R-97 Noise Limit L _{A90}	35.2	36.7	37.9	38.8	39.5	40.1	40.7	41.4	42.4	43.7	45.4	47.6
	Cumulative Predictions L _{A90}	-	-	-	-	36.5	39.3*	40.4*	40.9*	41.3	41.4	41.4	41.4
	Exceedance Level	-	-	-	-	-3.0	-0.8	-0.3	-0.5	-1.1	-2.3	-4.0	-6.2
NAL2	Total ETSU-R-97 Noise Limit L _{A90}	35.2	36.7	37.9	38.8	39.5	40.1	40.7	41.4	42.4	43.7	45.4	47.6
	Cumulative Predictions L _{A90}	-	-	-	-	36.3	39.2*	40.3*	40.8*	41.1	41.2	41.2	41.2
	Exceedance Level	-	-	-	-	-3.2	-0.9	-0.4	-0.6	-1.3	-2.5	-4.2	-6.4
NAL3	Total ETSU-R-97 Noise Limit L _{A90}	35.2	36.7	37.9	38.8	39.5	40.1	40.7	41.4	42.4	43.7	45.4	47.6
	Cumulative Predictions L _{A90}	-	-	-	-	36.5	39.4*	40.5*	41.0*	41.3	41.4	41.4	41.4
	Exceedance Level	-	-	-	-	-3.0	-0.7	-0.2	-0.4	-1.1	-2.3	-4.0	-6.2

*Inclusive of applied mode management to the Proposed development.

Table 11.19 Site Specific Noise Limit Compliance Table – Daytime (NALs 1-3 not financially involved)

Location		Wind Speed (ms ⁻¹) as standardised to 10m height											
		1	2	3	4	5	6	7	8	9	10	11	12
NAL1	Site Specific Noise Limit L _{A90}	35.2	36.7	37.9	38.8	36.2	30.1	30.7	31.4	34.7	39.5	43.0	46.3
	Predictions L _{A90}	-	-	22.9	24.8	28.3	30.1*	30.7*	31.4*	33.1	33.1	33.1	33.1
	Exceedance Level	-	-	-15.0	-14.0	-7.9	0.0	0.0	0.0	-1.6	-6.4	-9.9	-13.2
NAL2	Site Specific Noise Limit L _{A90}	35.2	36.7	37.9	38.8	36.4	30.5	30.7	31.4	35.9	39.8	43.2	46.4
	Predictions L _{A90}	-	-	22.7	24.6	28.1	30.5*	30.7*	31.4*	32.9	32.9	32.9	32.9
	Exceedance Level	-	-	-15.2	-14.2	-8.3	0.0	0.0	0.0	-3.0	-6.9	-10.3	-13.5
NAL3	Site Specific Noise Limit L _{A90}	35.2	36.7	37.9	38.8	36.2	30.1	30.7	31.4	35.1	39.5	43.1	46.3
	Predictions L _{A90}	-	-	22.8	24.7	28.2	30.1*	30.7*	31.4*	33.0	33.0	33.0	33.0
	Exceedance Level	-	-	-15.1	-14.1	-8.0	0.0	0.0	0.0	-2.1	-6.5	-10.1	-13.3

* mode management to the Proposed development.

- 11.89 The results of the noise assessment show that, subject to the adoption of mitigation measures in the form of low noise mode operation should NALs 1-3 be considered non-financially involved, the predicted cumulative wind turbine noise levels would meet the Total ETSU-R-97 Noise Limit, and predicted noise levels from the proposed development would meet the Site Specific Noise Limits, under all conditions and at all locations for both daytime and night-time periods. Accordingly, there would be **no significant residual noise effects**.
- 11.90 There are a number of wind turbine makes and models that would be suitable for the proposed development and that may not require the use of low noise modes. Should the proposal receive planning consent, the final choice of turbine would be subject to a competitive tendering process as such predictions of wind turbine noise are for information only. The final choice of turbine would, however, have to meet the noise limits determined and contained within any condition imposed.
- 11.91 The assessment therefore shows that there would be no significant effects from operational noise at the nearest noise sensitive receptors, subject to noise limits being conditioned and selection of an appropriate wind turbine model and operational mode.
- 11.92 Depending on the final turbine selected for the Site, blade type and confirmation of final warranted levels from the chosen manufacturer, mode management may or may not be required. It is anticipated that noise limits would be secured by an appropriately worded planning condition.

Cumulative

- 11.93 It was found there would be no significant cumulative construction and operational noise effects, accordingly there would be **no significant residual noise effects**.

Summary

- 11.94 Predicted construction noise levels compared with the most stringent Category A criteria outlined in BS5228 indicate that construction noise levels are below the threshold levels considered acceptable at all receptors for all construction phases and therefore **no significant effects** are anticipated.
- 11.95 The guidance contained within ETSU-R-97 was used to assess the likely operational noise impact of the proposed development. Predicted levels and measured background noise levels indicate that for dwellings neighbouring the site, wind turbine noise would meet the noise criteria established in accordance with ETSU-R-97 at all NALs.
- 11.96 There are a range of wind turbine models that would be appropriate for the proposed development. Should the proposal receive consent, the final choice of turbine would be subject to a competitive tendering process as such predictions of wind turbine noise are for information only. The final choice of turbine would, however, have to meet the noise limits determined and contained within any condition imposed.

11.97 Predicted cumulative wind farm operational noise levels at all the NALs lie below the Total ETSU-R-97 daytime and night-time Noise Limits. There would be no significant residual effects.

Table 11.9 Summary of Potential Significant Effects of the Proposed development

Likely Significant Effect	Mitigation Proposed	Means of Implementation	Outcome/Residual Effect
Construction			
Potential construction noise effects on noise sensitive receptors	Access track construction to take place during daytime hours only. No other specific measures required other than standard good practice during construction.	These would be embedded in a CEMP and good practice used during construction.	Not Significant
Potential cumulative construction noise effects on noise sensitive receptors	No specific measures required.	N/A	Not Significant
Operation			
Potential operational noise effects on noise sensitive receptors	Noise limits to be conditioned and final selection wind turbine model and requirement for mode management to be confirmed.	Planning conditions	Not Significant
Potential cumulative operational noise effects on noise sensitive receptors	Noise limits to be conditioned and final selection wind turbine model and requirement for mode management to be confirmed.	Planning conditions	Not Significant
Decommissioning			
Potential decommissioning noise effects on noise sensitive receptors	Same as construction	Same as construction	Not Significant

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Allt Domhain Wind Farm

Environmental Impact Assessment Report Volume 1 Chapter 12: Traffic and Transport

June 2025

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12 TRAFFIC AND TRANSPORT

Introduction

- 12.1 This chapter considers the potential effects of Allt Domhain 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: 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);
 - Technical Appendix 12.2: Site Access Junction Layout;
 - Technical Appendix 12.3: Stage 1 Road Safety Audit (RSA); and
 - Technical Appendix 12.4: Departure from Standard Application.
- 12.5 This assessment is based on the proposed development which comprises up to nine turbines with a maximum tip height of 230 metres (m) and operational life of 35 years, as described in Chapter 3: Project Description.
- 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 (CILT) and a Member of the Chartered Institution of Highways and Transportation (CIHT).

- 12.7 The technical reviewer of the traffic and transport assessment is Gordon Buchan BEng (Hons), MSC, CILT, CIHT, 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 Argyll and Bute-wide Local Development Plan 2 (LDP2) (2024)) and relevant aspects of NPF4 (National Planning Framework 4) (2023).
- LDP's Policy 30 relates to The Sustainable Growth of Renewables and notes that "The Council will support renewable energy developments where these are consistent with the principles of sustainable development and it can be adequately demonstrated that there would be no unacceptable significant adverse effects, whether individual or cumulative, including on local communities, natural and historic environments, landscape character and visual amenity, and that the proposals would be compatible with adjacent land uses."
 - 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 NESA 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 In undertaking the assessment, a request for a Scoping Opinion for Allt Domhain Wind Farm (formerly Arncliffe Wind Farm) was issued to transport agencies that have an interest in the surrounding road network which includes Argyll and Bute Council (ABC), as local roads agency, and Transport Scotland, as trunk road agency.
- 12.13 Table 12.1 provides a summary of the consultation responses received to date in relation to the proposed development.

Table 12.1: Consultation Responses

Consultee	Date Received	Consultation Response	Where and how is this addressed?
ABC	02 June 2021	Comments if site accessed from C20 Barr Glen Road The Council's Area Roads Engineer has provided the following comments: • the applicant should be made aware that there will be no financial contributions from Argyll & Bute Council towards the work required to facilitate the works or to make good any damage directly attributable to the construction of the wind farm; • the applicant should be made aware that they will be responsible for making good any damage to the public roads which is directly attributable to the construction of the wind farm; and	Comments noted. It is anticipated that a wear and tear agreement will form a suitable worded planning condition. Further information is provided in the Mitigation Measures and Monitoring section under the sub-heading Road Condition Survey. The Applicant will seek the correct consents agreements with the appropriate roads authority prior to any road works being undertaken.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		Transport Scotland should be notified as there may be work to be carried out within the road corridor of the A83 Tarbet – Campbeltown Trunk Road.	
		Furthermore, the Area Roads Engineer has advised that the following conditions would apply in the event that consent is granted. Please note that it is considered that where feasible this information should be presented in the EIA: - Traffic Management Plan to be submitted for approval by Roads & Infrastructure Services prior to any work starting on site. The Traffic Management plan should include: details of all materials, plant, equipment, components and labour required during the construction, operation and decommissioning phase; - A detailed Method Statement in relation to access and transport of materials, plant and equipment. Method statement to be submitted for approval by Roads & Infrastructure Services prior to any work starting on site; - New passing places to be provided and existing passing places to be extended where required. Locations and construction details to be agreed with Roads & Infrastructure Services prior to any work starting on site; - Carriageway widening to be carried out, locations and construction details to be agreed with Roads & Infrastructure Services prior to any work starting on site; The sections of temporary carriageway widening to be soiled and seeded on completion of	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. It is agreed that the preparation of a Method Statement should form a suitably worded planning condition. As noted in the Mitigation Measures and Monitoring section under the Passing Place Review sub-section, the Applicant is committed to investigating further mitigation measures, by way of undertaking a review of the proposed access route, to determine whether there is a requirement for the provision of new temporary passing places or upgrades to existing passing places on the access route, within the public road boundary or land under their control. It

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		construction works, to the satisfaction of Roads & Infrastructure Services; - The applicant to inspect and submit a report which identifies areas of road which will be vulnerable to the proposed traffic loading. The report will include an assessment of any culverts or other structures. The report will include measures to mitigate against any likely damage. Details of the report to be agreed with Roads & Infrastructure Service prior to any work starting on site; - A detailed condition survey to be carried out between the A83 and the application site prior to any work starting on site. The condition survey to be recorded by means of video and photographs. A copy of the video and photographs to be submitted to Roads & Infrastructure Services for approval; - Public roads between the A83 and application site to have inspections carried out on a weekly basis to ensure the carriageway remains in a safe condition. Details of inspection to be agreed with Roads & Infrastructure Services prior to any work starting on site;	is agreed that this should form a suitably worded planning condition. A Route Survey Report (RSR) is provided as part of Technical Appendix 12.1 which outlines the proposed AIL delivery route from port to 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. Information regarding a proposed Road Condition Survey is provided in the Mitigation Measures and Monitoring section. It is agreed that this should form a suitably worded planning condition. Comment noted. Information regarding a proposed Road Condition Survey in the Mitigation Measures and Monitoring section notes that 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.
		The Area Roads Engineer also wishes the applicant to note that:	Comment noted. Appropriate consents will

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		a Road Opening Permit will be required (S56) and no surface water discharge to the public road. The Council notes that ongoing consultation will be undertaken with Transport Scotland and Argyll & Bute Council Roads department in this regard.	be applied for with regards to any changes to the road network.
		If the site is accessed directly from the A83 Tarbet – Campbeltown Trunk Road no conditions will be required.	Comment noted.
TS	08 April 2021	Site Access We note there are currently two options for the location of the site access. The first option (the 'northern route') accesses the site via the A83(T) north of Glenbarr and uses an existing minor road. The alternative route ('the southern route') takes access further south on the A83(T), north of Bellochantuy via an existing forestry track. Transport Scotland would state that any proposed changes to the trunk road network must be discussed and approved (via a technical approval process) by the appropriate Area Manager. At the application stage, we would ask that 1:500 scale plans are submitted for the A83 access points showing what the proposed changes would be to the existing access points and identifying the visibility splays that can be achieved.	Comment noted. Appropriate consents will be applied for with regards to any changes to the road network. The proposed junction arrangement on the A83 (T) is included as Technical Appendix 12.2, which is supported by a Stage 1 RSA and Departure from Standard, which are Technical Appendix 12.3 and 12.4 respectively.
		Assessment of Environmental Impacts Chapter 10 of the SR deals with the topic of Traffic and Transport. This states that potential trunk road related environmental impacts such as driver delay, pedestrian amenity, severance, safety etc will be considered and assessed where appropriate (i.e. where Institute of Environmental Management and Assessment (IEMA) Guidelines for further assessment are breached). These specify that road links should be taken forward for assessment if:	Comment noted. Details of baseline traffic flows are provided within the Baseline Conditions section subsection Existing Traffic Conditions .

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		• Traffic flows will increase by more than 30%, or • The number of HGVs will increase by more than 30%, or • Traffic flows will increase by 10% or more in sensitive areas. The SR also states that base traffic volumes will be established using an Automated Traffic Counter for one week on the A83(T) and minor roads as required. Transport Scotland is satisfied with this approach, and would add that an alternative source of traffic data is Traffic Scotland's National Traffic Data System (https://ntds.trafficscotland.org/). The SR indicates that there will be a calculation of increased traffic generation on the surrounding road network during construction of the wind farm based on material and staffing requirements and comparison to the baseline situation. An assessment of the environmental effects of increased traffic generation on the surrounding road network will be provided. We note that any significant cumulative traffic impacts associated with other developments commencing in tandem with the proposed development would also be considered. Transport Scotland is in agreement with this approach.	Comment noted. Details of other proposed schemes in the area are included in the Cumulative Developments section of this Chapter. A sensitivity review to assess the traffic impact if all schemes (including the proposed development) were to be constructed at the same time was undertaken in the Cumulative Effects section of the chapter. It is proposed that any crossover of traffic with the proposed development flows will be addressed via an overarching Traffic Management and Monitoring Plan.
		Abnormal Loads Assessment We understand that the site would be accessed from the A83(T), with turbine components travelling north from Campbeltown Harbour to the A83 north-west towards Glenbarr then turn right from the A83(T) either north of Bellochantuy or at Glenbarr onto an unclassified road. Transport Scotland will require to be satisfied that the size of turbines proposed can negotiate the selected route and that their transportation will not have any	A RSR is provided in Technical Appendix 12.1 and provides details of pinch points along the proposed routes as well as swept path analysis of the pinch points and proposed mitigation measures to facilitate the delivery of the turbine components.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		detrimental effect on structures within the trunk road route path. A full Abnormal Loads Assessment report should be provided with the Environmental Impact Assessment (EIA) that identifies key pinch points on the trunk road network. Swept path analysis should be undertaken and details provided with regard to any required changes to street furniture or structures along the route.	
British Horse Society (BHS)	09 March 2021	Whilst the active travel movement does not consider equestrian travel to be a form of active travel there are many people for whom riding is an attractive mode of travel whether that be for travel purposes or leisure purposes, and the delivery of Active Travel should not discourage this, just as it should not discourage the use of micro-scooters, roller blades, skateboards and other similar modes of travel.	Comment noted. An Outline Access Management Plan is provided as Mitigation Measures and Monitoring section of this Chapter which considers equestrian travel.

Assessment Methodology and Significance

Scope of Assessment

Effects Assessed in Full

12.14 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.

12.15 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

12.16 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. As such, the effects during operational phase are scoped out of the assessment.

Decommissioning Effects

- 12.17 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 Developments

- 12.18 A review of ABC's Renewables Web Map Application, online planning portal and the 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.
- 12.19 Transport Assessment guidance¹ 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.

Local Wind Farms

- 12.20 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	Name	No. Turbines	Status	Peak Traffic Generation	
				Cars / LGV	HGV
ECU00002103	Clachaig Glen Wind Farm	12	Consented – November 2024	60	140
15/00205/PP / PPA-130-2059	Eascairt Wind Farm	13	Consented – September 2018	50	62
ECU00001857	High Constellation Wind Farm	10	Consented – June 2020 / July 2022 Currently Under Construction	52	39
ECU00000673	Tangy IV Wind Farm	16	Consented – December 2019	59	30

¹ UK Government (2014) Available at: <https://www.gov.uk/guidance/travel-plans-transport-assessments-and-statements>

Reference	Name	No. Turbines	Status	Peak Traffic Generation	
				Cars / LGV	HGV
ECU00000471	Airigh Wind Farm	14	Consented – March 2020	0	73
ECU00003230	Rowan Wind Farm	13	Consented – April 2024	51	70

- 12.21 Clachaig Glen Wind Farm will be located to the north-west of the proposed development and accessed via the A83 (T), approximately 9 kilometres (km) to the north of Glenbarr. The development comprises 12 wind turbines and associated infrastructure. Information contained within the EIA transport submissions, shows that the same access routes will be used as those identified for the proposed development and for the purposes of the assessment undertaken, a worst-case scenario was assumed whereby 100% of the average construction trips was assigned to the A83 (T) on both the northern and southern links within the study area. As such, the information in relation to construction trips within the Clachaig Glen Wind Farm assessment have been considered as part of the cumulative assessment.
- 12.22 Eascairt Wind Farm will be located to the north of the proposed development and accessed via the B8002, which is accessed from the A83 (T), approximately 32km to the north of Glenbarr. The development comprises ten wind turbines and associated infrastructure. Information contained within the EIA transport submissions shows that the same access routes will be used as those identified for the proposed development and for the purposes of the assessment undertaken, a worst-case scenario was assumed whereby 100% of construction trips was assigned to the A83 (T) on both the northern and southern links within the study area. As such, the information in relation to construction trips within the Eascairt Wind Farm assessment works have been considered as part of the cumulative assessment.
- 12.23 High Constellation Wind Farm will be located to the north of the proposed development and accessed via the A83 (T), approximately 30km to the north of Glenbarr. The development comprises 13 wind turbines and associated infrastructure. Information contained within the EIA transport submissions, shows that the same access routes will be used as those identified for the proposed development and for the purposes of the assessment undertaken, a worst-case scenario was assumed whereby 100% of construction trips was assigned to the A83 (T) on both the northern and southern links within the study area. High Constellation Wind Farm is currently under construction, and as such should be operational prior to the commencement of construction of the proposed development in 2028. High Constellation Wind Farm has therefore not been considered as part of the cumulative assessment.
- 12.24 Tangy IV Wind Farm will be located to the southwest of the proposed development and accessed via the A83 (T), approximately 12 km to the south of Glenbarr. The development comprises 16 wind turbines and associated infrastructure. Information contained within the EIA transport submissions, shows that the same access routes will be used as those identified for the proposed development and for the purposes of the assessment undertaken, a worst-case scenario was assumed whereby 100% of construction trips was

assigned to the A83 (T) on both the northern and southern links within the study area. As such, the information in relation to construction trips within the Tangy IV Wind Farm assessment works have been considered as part of the cumulative assessment.

- 12.25 Airigh Wind Farm will be located to the north of the proposed development and accessed via the A83 (T), approximately 52km to the north of Glenbarr. The development comprises 14 wind turbines and associated infrastructure. Information provided as part of the wind farm's planning application shows that a section of the study area overlaps with the proposed development's study area, to the south of Tarbert. As such, the information in relation to construction trips within the Airigh Wind Farm assessment works have been considered as part of the cumulative assessment.
- 12.26 Rowan Wind Farm will be located to the north of the proposed development and accessed from the B8024 via the A83 (T), approximately 40km to the north of Glenbarr. The wind farm comprises 13 wind turbines and associated infrastructure. Information contained within the associated planning submission documents shows construction trips associated with Rowan will impact on part of the proposed development's study area. As such, the information in relation to construction trips within the Rowan Wind Farm assessment works have been considered as part of the cumulative assessment.

Local Committed Developments

- 12.27 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	Current Status	Traffic Generation	
			Cars / LGV	HGV
23/00382/PP	Crossaig North, Argyll – Proposed 275 kV Substation	Consented – June 2023	34	19
23/00601/S37	Crossaig North Overhead 275 kV Line between Inveraray and Crossaig			

- 12.28 Crossaig North Substation will be located beside the existing Crossaig Substation, approximately 8km southwest of the village of Claonaig. Information contained within the EIA transport submissions shows that access for HGVs will be from the A83 (T) via existing private tracks known as the Cross Kintyre Haul Road and the Cour Estate track. Access for cars and LGVs will be from the A83 (T) and subsequently via the B8001 and B842. Traffic associated with the construction phase of the Crossaig North Substation will impact on the proposed development's study area. Construction of Crossaig North Substation has commenced and is expected to take approximately 30 months to construct. While it is expected that these will be operational prior to construction of the proposed development commencing, as a worst-case assessment they have been considered as part of the cumulative assessment should their construction programme slip.

- 12.29 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, such as Cnoc Buidhe, West Torrisdale, Killeen and Breackerie wind farms, which are all currently at application stage), any crossover of traffic with the proposed development flows could be addressed via an overarching Traffic Management and Monitoring Plan (TTMP).
- 12.30 In addition to the above, a review of local online planning applications, which were non-energy related, has been undertaken on the ABC 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.
- 12.31 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.
- 12.32 As for consented schemes, any crossover of traffic with the proposed development flows and those associated with other schemes which are yet to be consented would be addressed via an overarching TTMP.
- 12.33 It should be noted that it is extremely unlikely that the peak traffic conditions would occur at the same time due to differences in construction programmes, material supplies and developer resources. Also, all abnormal load deliveries cannot occur at seven separate sites on the same day due to restrictions on the numbers of loads moving on the network at the same time set by Police Scotland.

Study Area

- 12.34 The Site is located approximately 6.1km east of Glenbarr and 8km west of Carradale in the ABC administrative area. The Site currently comprises open land.
- 12.35 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.
- 12.36 Two access options are currently under review for the proposed development, whereby the access from the strategic road network will be taken from the A83 (T) to the west, either via the existing road network or via a new access junction. The two options under consideration are detailed below:
- Access Option 1 (Blary Hill Access Route) - From the A83 (T) via Barr Glen Road (C20) through to the Blary Hill Wind Farm access junction; and
 - Access Option 2 (Northern By-pass Route) - From the A83 (T) via a newly constructed junction and access track to the north of Glenbarr Primary School, by-passing Barr

Glen Road (C20) in its entirety, tying into the main Site access junction to the west of Arnicle.

- 12.37 Access Option 1 would require construction vehicles to exit the A83 (T) at its junction with Barr Glen Road (C20) which is located at the northern extent of Glenbarr. Construction vehicles would then be required to travel eastbound for approximately 2.2km to the existing access junction for Blary Hill Wind Farm, at which point they would travel through to the Site via a combination of existing and new access tracks. AILs using this route would not be able to negotiate the existing junction between the A83 (T) and Barr Glen Road (C20) and would either have to make use of the existing junction by-pass to the south of the junction that was created for the operational Blary Hill Wind Farm (subject to agreement with the relevant third parties) or alternatively create a new junction by-pass to the north of the existing junction, to allow the AILs to join Barr Glenn Road (C20) to the east of Barrglenn View. They would then travel through to the proposed development as per general construction traffic.
- 12.38 Access Option 2 would require the construction of a new access junction on the A83 (T), located approximately 1km north of the existing junction between the A83 (T) and Barr Glenn Road (C20). The junction would allow for all construction traffic and AILs to depart the public road network and travel through to the main Site access on Barr Glen Road (C20) to the west of Arnicle on new access tracks. This option would allow for all construction traffic to exit the strategic road network and travel through to the Site, by-passing both Glenbarr and Barr Glen Road (C20). The proposed access junction on the A83 (T) is provided in Technical Appendix 12.2 as Drawing 10109651_001_1 and supported by Technical Appendix 12.3: Stage 1 RSA and Technical Appendix 12.4: Departure from Standard Application. The proposed access junction on Barr Glen Road (C20) is also provided in Technical Appendix 12.2 as Drawing 10109651_002_1.
- 12.39 Until such time as the access proposals have been finalised, both access options have been considered in full within this assessment.
- 12.40 Routing for construction materials would be predominantly from the north and south on the A83 (T), before travelling through to the main Site access junction either via Barr Glen Road (C20), on new segregated access tracks, or a combination of both. Where feasible, materials will be sourced from local suppliers which will avoid traffic impacting on local communities as far as practicable.
- 12.41 All abnormal load traffic will access the Site from the south, with turbine components arriving at Campbeltown Harbour. A full description of the route is described in later sections of the chapter.
- 12.42 The AIL RSR is provided in **Technical Appendix 12.1**. This provides further detail of the route that the delivery vehicles will take from the Port of Entry (PoE) to the Site, as well as detailing constraint points and proposed mitigation measures along the route
- 12.43 The study area for this assessment is as follows:
- A83 (T) between Campbeltown and Tarbert;
 - Barr Glen Road (C20); and

- Hall Street, Campbeltown.

- 12.44 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.
- 12.45 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

- 12.46 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 – ABC 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

- 12.47 The following field surveys were carried out to inform the assessment:
- The collection of traffic flows and speed data was undertaken between 19 and 25 March 2025 to establish a baseline on the local road network.

Assessment of Significance

- 12.48 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

- 12.49 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.
- 12.50 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 ALLs and new strategic trunk road junctions capable of accommodating ALLs.
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 public facilities and services	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

- 12.51 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

- 12.52 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.
- 12.53 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”.
- 12.54 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 additional Road Safety Audits (RSA) post consent and it is considered that this can be secured via a planning condition. A RSA has been undertaken for the proposed junction on the A83 (T) and is included as Technical Appendix 12.3.
- Large loads – The movement of the ALLs associated with the construction of the proposed development have been considered in full, within a separate RSR (see Technical Appendix 12.1: ALL Route Survey Report (EIAR 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 During Construction sub-section.

- 12.55 While not specifically identified, as more vulnerable road users, cyclists and equestrian users are considered in similar terms to pedestrians.
- 12.56 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.
- 12.57 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.

Magnitude	Criteria
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

- 12.58 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

- 12.59 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

- 12.60 The following assumptions have informed the assessment of effects in this chapter:

- A construction programme of 18 months has been assumed;
- 100% of concrete will be batched onsite meaning only raw materials to prepare the concrete i.e. cement powder, water, aggregate and sand will be imported;
- There are no onsite borrow pits proposed at this time, as such all aggregate materials will be imported from local suppliers;
- 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 2028 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.

- 12.61 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.

12.62 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

12.63 There are limited pedestrian facilities, in the vicinity of the Site or along the A83 (T) where construction traffic will exit to travel through to the proposed development, which reflects the rural nature of the area.

12.64 Those areas where pedestrian facilities are located are detailed below:

- There is a pedestrian footway on the eastern side of the A83 (T) running from the settlement of Glenbarr to Glenbarr Primary School, for a distance of approximately 800m;
- At Bellochantuy, there is a short section of pedestrian footway on the eastern side of the A83 (T) running from the bus stop to the telephone box, for a distance of approximately 50m. There is a crossing point with drop kerbs and tactile paving, providing a link between the footway on the eastern side of the carriageway with Bellochantuy on the western side;
- There is a pedestrian footway on the southern side of the A83 (T) from Drumore Farm through to Campbelltown;
- There is a pedestrian footway on the eastern side of the A83 (T) in Muasdale, for a distance of 450m. In addition, there is a short section on the western side of the carriageway for a distance of approximately 250m;
- At Tayinloan, there is a pedestrian footway on the western side of the A83 (T) carriageway for a distance of approximately 165m, immediately followed by a further 155m on the eastern side of the carriageway;
- There is a pedestrian footway on the northern side of the A83 (T) running from the junction for Ronachan Farmhouse B&B to the petrol filling station in Clachan, for a distance of approximately 2.2km; and
- There is a pedestrian footway on the eastern side of the A83 (T) from the access to Carrick cemetery through to Tarbert.

- 12.65 Further away from the proposed development on the wider study area, including the A83 (T), there are pedestrian facilities within the larger settlements, including Campbeltown and Tarbert. These generally include footways either on one side or both sides of the carriageway.
- 12.66 The level of pedestrian infrastructure is commensurate with the scale of the local settlements and their rural setting.
- 12.67 A review of ABC's Core Path network indicates that there are no Core Paths in the vicinity of the proposed development, with the closest being the C304 – Glenbarr School Route, which is located on the eastern side A83 (T), running between Glenbarr and the primary school. The Core Path is approximately 800m in length and comprises a footway, which appears to be in generally reasonable condition, with some areas of deterioration, based on available online imagery.
- 12.68 Within the wider study area there are Core Paths which have the potential to be impacted by construction vehicles (including AILs), and as such have been included in the assessment. Those Core Paths sufficiently set back from the road network are excluded. Other core paths scoped into the assessment are as follows:
- C081(a) - Campbeltown Pier to Davaar Island car park, Footway beside main road / Slope - flat / Not Waymarked / all on pavement - 0.3km;
 - C084 - Campbeltown to Stewarton, Public Road / Slope - gentle to moderate / Waymarked / Obstacles - Footway changes sides - 2.7km;
 - C080 (a) - Ship yard to Kilchousland, Public Road with footway / Slope – flat - 1.9km;
 - C088(l) - Campbeltown to Cloanaig, Single Track Road / Slope - Fairly steep in places - 9.1km;
 - C293 - Clachaig Water circular, Muasdale, Path- stone track and trod earth / Slope - steep / Not Waymarked / Obstacles- Bridge/s - 2.6km;
 - C094(c) - Tayinloan - Carradale East-West link, Path- stone track / Slope - moderate / Waymarked / Obstacles - farm gate - 1.9km;
 - C533 - Kintyre Way at Ronachan House, Clachan, Path and track / Slope – moderate - 0.9km;
 - C303(a) - Cloanaig to Clachan (Kintyre Way), Path - stone track / Slope - steep / Waymarked / Obstacles- Bridge/s farm gate - 2.3km;
 - C104(b) - Kennacraig to Skipness, Single Track Road / Slope - steep / Not Waymarked / Obstacles - part of the National Cycle Network - 7.6km;
 - C295(b) - Inverneil to Tarbert via Kilberry NCN, Single Track road / Slope - moderate / Waymarked / Promoted as part of National Cycle Network - 6.9km;
 - C295(a) - Inverneil to Tarbert via Kilberry NCN, Footway beside two lane A road / Slope - moderate / Waymarked / Promoted as part of National Cycle Network - 1.2km;
- 12.69 The Kintyre Way is a 160km (100 mile) walking route that meanders through the Kintyre peninsula from Tarbert in the north to Machrihanish in the south. Sections of the route run along the A83 (T) at its northern and southern ends, however, the route does not run in the vicinity of the proposed development.

- 12.70 The majority of the paths appear to be recreational in nature and do not appear to provide significant commuter / school traffic linkages to the surrounding settlements.
- 12.71 A review of Sustrans' National Cycle Network (NCN) map indicates that there are no NCN routes within the study area. There is, however, a section of on-road route which is not on the NCN which runs along the A83 (T), between its junction with the B9004 and the access to Tarbert Golf Course to the south of Tarbert.

Road Links

- 12.72 The A83 (T) forms part of the trunk road (T) network which runs from Campbeltown to Arrochar. The road is maintained by BEAR Scotland, on behalf of TS. The A83 (T) is mainly subject to the national speed limit, which reduces when travelling through towns and villages. The A83 (T) is well-used by HGVs for the transportation of materials and goods to and from the Kintyre Peninsula.
- 12.73 Hall Street, Campbeltown is a two-way road, which is segregated by landscaping. Each lane is approximately 6.5m in width, which includes space for on-street parking. Hall Street links Campbeltown Ferry Terminal to the A83 (T) via Kinloch Road (A83 (T)) / Hall Street / Main Street gyratory. Hall Street is subject to a speed limit of 30 miles per hour (mph) and is maintained by ABC.
- 12.74 Barr Glen Road (C20) is a single track road running from its junction with the A83 (T) in Glenbarr at its western extents to Arnicle in its eastern extents. The road width varies throughout its length and has been subject to widening works in the past, associated with other wind farm developments in the area. The road has passing places in place between the A83 (T) and its junction with Blary Hill Wind Farm. The road is subject to the national speed limit.
- 12.75 Within the study area, the A83 (T) forms 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'.
- 12.76 '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.

12.77 Barr Glenn Road (C20) is classified as a 'Severely Restricted Route'.

Existing Traffic Conditions

12.78 In order to assess the impact of the proposed development on the study area, two Automatic Traffic Count (ATC) survey locations were established in March 2025 at the following locations:

- Traffic Count Location 1: A83 (T), north of Glenbarr Primary School; and
- Traffic Count Location 2: Barr Glen Road (C20), east of Glenbarr.

12.79 In addition to the ATC survey locations, Annual Average Daily Traffic (AADT) flows were obtained from the UK Department for Transport (DfT) and TS traffic databases.

12.80 The counts sites used were as follows:

- Traffic Count Location 3: A83 (T) at West Tarbert (TS Count Point ATC08058);
- Traffic Count Location 4: A83 (T) at Kennacraig (DfT Count Point 77107); and
- Traffic Count Location 5: A83 (T) north-west of Campbeltown (DfT Count Point 91292).

12.81 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.

12.82 In order to estimate 2025 flows, the 2023 traffic data that was obtained from the DfT and the 2024 traffic data from the TS databases were estimated by applying National Road Traffic Forecast (NRTF) low growth factors. The low growth factor for 2023 to 2025 is 1.011 and the low growth factor for 2024 to 2025 is 1.005.

12.83 Table 12.7 summarises the AADT data collected and used in the assessment.

Table 12.7: Average Daily Traffic Flows (2025)

Site Ref.	Survey Location	Source	Cars / Lights	HGV	Total	% HGV
1	A83 (T), north of Glenbarr Primary School	Commissioned ATC	950	441	1,398	31.5%
2	Barr Glen Road (C20), east of Glenbarr	Commissioned ATC	67	26	94	27.9%
3	A83 (T) at West Tarbert	TS	1,835	494	2,330	21.2%
4	A83 (T) at Kennacraig	DfT	2,079	265	2,343	11.3%
5	A83 (T) north of Campbeltown	DfT	2,556	131	2,687	4.9%

Variances may occur due to rounding

- 12.84 The ATC and TS 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: Average Daily Traffic Flows (2025)

Site Ref.	Survey Location	Source	Mean Speed (mph)	85th %ile Speed (mph)	Speed Limit (mph)
1	A83 (T), north of Glenbarr Primary School	Commissioned ATC	51.8	59.3	60
2	Barr Glen Road (C20), east of Glenbarr	Commissioned ATC	33.5	42.3	60
3	A83 (T) at West Tarbert	TS	33.1	38.9	60

Speed data obtained for 2025 for all sites

- 12.85 Speed information for all three locations indicates that people are driving below the posted speed limit at each location.

Accident Data

- 12.86 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.
- 12.87 Transport Assessment 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.
- 12.88 The statistics are categorised into three categories, namely “Slight” for damage only incidents, “Serious” for injury accidents and “Fatal” for accidents that result in a death. The review included the A83 (T) from Campbeltown through to Tarbert and Barr Glen Road (C20).
- 12.89 The locations of the recorded PIAs are shown in Figure 12.3 and a summary analysis of the incidents indicates that:
- A total of 19 PIAs were recorded within the study area within the latest five-year period.
 - Of these 19 PIAs, eight were classified as slight (42%) and 11 were classified as serious (58%). No fatalities were recorded along the study area within the assessed period.
 - Two of the recorded accidents involved motorcycles. One was a single vehicle PIA which was recorded on the A83 (T) the south-west of A83 (T) Campbeltown Road / Croft Park junction in Tarbert and was classified as serious. The other PIA involving a

motorcycle was recorded to the north of Rhunmahaorine. The PIA was classified as slight and involved a total of two vehicles.

- Two PIAs were recorded to involve a pedestrian. One was recorded to the south of the A83 (T) Millknowe Road / Mill Street junction in Campbeltown. The PIA was classified as slight. The second was recorded on the A83 (T) roundabout junction with Hall Street and was also classified as being slight and involved a young driver (under 25).
- Young drivers (under 25) were involved in four accidents, two slight and two serious.
- Three accidents were recorded which involved an HGV, two slight and one serious. The serious accident occurred south of the access to Killean Estate and was a single vehicle accident. The two slight accidents involved two vehicles, one occurring at a junction and one on a bend on the A83 (T).
- Two slight accidents were recorded within approximately 2km of the proposed access junction location on the A83 (T) north of Glenbarr, one to the north and one to the south of the proposed junction. The PIA to the north was a single vehicle accident, while the PIA to the south involved two vehicles.
- There were no recorded accidents on Barr Glen Road (C20).

12.90 Whilst occurring outwith the assessed period above, it is noted that a fatal accident occurred on the A83 (T) at Whitehouse, to the south of Tarbert. The accident was a single vehicle accident and occurred in December 2024 at 19.30 on a section of road where there is no street lighting present. No detailed information on the accident is available, however the accident occurred in winter months (December – February) when poor weather and resultant driving conditions may have exacerbated the risk of an accident occurring.

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 or proposed access locations that currently require addressing or would be exacerbated by the construction of the proposed development.

Future Baseline Flows

12.91 Construction of the project is anticipated to commence during 2028, if consent is granted. To assess the likely effects during the construction phase, base year traffic flows were determined by applying a NRTF low factors to the traffic flows.

12.92 The NRTF low growth factors for 2025 to 2028 is 1.015. This factor was applied to the 2025 traffic data shown in Table 12.7 to estimate the 2028 Base traffic flows shown in Table 12.9.

Table 12.9: Average Daily Traffic Flows (2028)

Site Ref.	Survey Location	Cars / Lights	HGV	Total
1	A83 (T), north of Glenbarr Primary School	964	448	1,419
2	Barr Glen Road (C20), east of Glenbarr	68	27	95

Site Ref.	Survey Location	Cars / Lights	HGV	Total
3	A83 (T) at West Tarbert	1,863	502	2,365
4	A83 (T) at Kennacraig	2,110	269	2,379
5	A83 (T) north of Campbeltown	2,594	133	2,728

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 12.10 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 12.10: Receptor Sensitivity Summary

Receptor	Sensitivity	Justification
A83 (T) Road Users	Low	A-class roads that can accommodate HGV traffic with no traffic calming facilities present.
Hall Street Road Users	Medium	While the road is not classified as a local A or B class road, it is of sufficient width to be capable of regular use by HGV traffic.
Barr Glen Road (C20) Users	High	Where the road is a minor rural road, not constructed to accommodate frequent use by HGVs.
Residents of Campbeltown	High	Large rural settlement containing a high number of community and public services and facilities.
Residents along the A83 (T) (outwith towns and villages)	Low	Small settlements with limited community facilities.
Residents of Tarbert	High	Large rural settlement containing a high number of community and public services and facilities.
Residents along the Barr Glen Road (C20)	Negligible	Where a location includes individual dwellings or scattered settlements with no facilities
Residents in Glenbarr	Medium	Where a location is an intermediate sized rural settlement, containing some community or public facilities and services.

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

- Campbelltown;
- Glenbarr / Glenbarr Primary School; and
- Tarbert.

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.

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 materials and crushed rock;
- AILs consisting of the wind turbine components and heavy lift crane(s); and
- Escort vehicles for AIL 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.

12.101 As previously discussed, two potential access options for the proposed development are currently under consideration, which are detailed below:

- Access Option 1 - From the A83 (T) via Barr Glen Road (C20) through to the Blary Hill Wind Farm access junction; and
- Access Option 2 - From the A83 (T) via a newly constructed junction and access track to the north of Glenbarr Primary School, by-passing Barr Glen Road (C20) in its entirety, tying into the main Site access junction to the west of Arnicle.

12.102 Depending on the final access option that is progressed, there will be differences in the construction trip generation between the two, primarily taking account of the amount of

materials required to construction the new northern by-pass route. As such, where relevant, the difference in material quantities and resultant trip generation will be provided below.

Construction Staff

- 12.103 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 36 staff per day is to be expected.
- 12.104 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).
- 12.105 Based on these assumptions, staff transport cars and light vehicles would account for a maximum of approximately 34 vehicle movements (17 inbound trips and 17 outbound trips) per day during the peak period of construction.

Abnormal Indivisible Load Deliveries

- 12.106 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 12.11.

Table 12.11: 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	0.25

- 12.107 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.
- 12.108 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 37 convoys on the

network (including cranes), with a total of approximately 220 escort vehicle movements (110 inbound trips and 110 outbound trips).

- 12.109 Wind turbine components that do not classify as ALLs, would be delivered in addition to these, resulting in a further approximate 60 vehicle movements (30 inbound trips and 30 outbound trips). All of these deliveries are expected to occur over a period of approximately four months depending on weather conditions.
- 12.110 The escort vehicles have been assumed to be police cars and LGVs. Motorcycles may be deployed, depending upon police resources.

General Deliveries

- 12.111 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 vehicle movements to Site are made (20 inbound trips and 20 outbound trips) per month.

Material Deliveries

- 12.112 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.
- 12.113 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, located to the north or south of the proposed development.
- 12.114 The estimated total volume of concrete required onsite is 7,525m³, 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 12.12 below.

Table 12.21: Concrete Materials

Element	Volume / Installation (m ³)	Inbound Trips	Total Movements
Cement	1,990	17	34
Sand	878	78	157
Aggregates	1,791	160	320
Water	2,866	96	192

- 12.115 Reinforcement required in the foundations across the Site are detailed in Table 12.13 below.

Table 12.13: Steel Reinforcement Deliveries

Element	Weight / Installation (t)	Total Weight (t)	Lorry Capacity (t)	Inbound Trips	Total Journeys
Turbine Foundation	90	810	30	27	54
Substation Foundation	20	20	30	1	2

12.116 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.

12.117 As previously advised, there are no proposed borrow pits onsite, as such all aggregate materials will be imported from nearby quarries either located to the north or south of the proposed development.

12.118 The estimate of the imported materials for both Access Option 1 and Access Option 2 are shown in Table 12.14.

Table 12.14: Aggregate Material Deliveries

Element	Volume / Installation (m³)	Total Weight (t)	Lorry Capacity (t)	Inbound Trips	Total Journeys
Access Option 1					
Aggregate Materials	117,532	258,570	20	12,929	25,858
Access Option 2					
Aggregate Materials	129,973	285,941	20	14,298	28,596

12.119 Geotextile will be delivered to Site in rolls by HGV. A summary for each access option is provided below:

- Access Option 1 – 106 rolls resulting in a total of 12 vehicle movements (6 inbound trips and 6 outbound trips); and
- Access Option 2 – 74 rolls resulting in a total of 8 vehicle movements (6 inbound trips and 6 outbound trips).

12.120 Cables will connect each wind turbine to the substation compound. Trip estimates for the cable materials are provided below in Table 12.15 and Table 12.16. Three cables are to be provided within each cable trench and will be backfilled with cable sand.

Table 12.15: Cable Trip Estimate

Element	Total Cable Length (m)	Length per Drum (m)	Number of Drums	Inbound Trips	Total Journeys
Cables	5,400	500	32	4	8
Cable Ducting	500	5	100	5	10

Table 12.16: Cable Sand Trip Estimate

Element	Total Volume (m3)	Total Weight (t)	Lorry Capacity (t)	Inbound Trips	Total Journeys
Cable Sand	1,823	2,916	20	146	292

- 12.121 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).
- 12.122 A number of new or upgraded water crossings will be required for each access option. A summary for each access option is provided below:
- Access Option 1 – 300 vehicle movements over a period of five months resulting in 150 inbound trips and 150 outbound trips; and
 - Access Option 2 – 400 vehicle movements over a period of five months resulting in 200 inbound trips and 200 outbound trips; and
- 12.123 Specifically in relation to Access Option 2, there will be a requirement to construct a new access junction on the A83 (T). Based on the current proposals, it is estimated that in the order of 200 vehicle movements will be required, resulting in 100 inbound trips and 100 outbound trips.
- 12.124 The resulting traffic generation estimates have been plotted onto indicative construction programmes to illustrate the peak journeys on the network for both Access Option 1 and Access Option 2. Table 12.17 and 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 12.17: Construction Traffic Profile (two-way trips) – Access Option 1

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
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			5,172	5,172	5,172	5,172	5,172											
Bridge Construction	HGV			60	60	60	60	60											
Concrete Batching Deliveries	HGV						175	175	175	175									
Reinforcement	HGV						28		28										
Cable & Ducting Deliveries	HGV								18										
Cabling Sand	HGV										73	73	73	73					
Geotextile Deliveries	HGV			6	6														
Substation	HGV									83	83	83							
AIL Cranage	HGV											20				20			
AIL Deliveries	HGV											69	69	69	69				
AIL Escorts	Car/LGV											55	55	55	55				
Fit Out, Commissioning & Testing	Car/LGV															60	60	60	40
Staff	Car/LGV	396	396	572	572	792	792	792	792	792	792	792	792	792	792	792	572	396	396
Total HGV		140	110	5,278	5,278	5,272	5,476	5,448	262	300	198	286	182	182	110	60	40	80	130
Total Cars / LGV		396	396	572	572	792	792	792	792	792	792	848	848	848	848	852	632	456	436
Total Movements		536	506	5,850	5,850	6,064	6,268	6,240	1,054	1,092	990	1,132	1,030	1,030	956	912	672	536	566
Total HGV per Day		8	6	240	240	240	250	248	12	14	10	14	10	10	6	4	2	4	6
Total Cars / LGV per Day		18	18	26	26	36	36	36	36	36	36	40	40	40	40	40	30	22	20
Total per Day		26	24	266	266	276	286	284	48	50	46	52	48	48	44	42	32	26	26

Table 12.18: Construction Traffic Profile (two-way trips) – Access Option 2

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
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
A83 (T) Junction Construction	HGV			100	100														
Bulk Material Deliveries	HGV			5,719	5,719	5,719	5,719	5,719											
Bridge Construction	HGV			60	60	60	60	60											
Concrete Batching Deliveries	HGV						175	175	175	175									
Reinforcement	HGV						28		28										
Cable & Ducting Deliveries	HGV								18										
Cabling Sand	HGV										73	73	73	73					
Geotextile Deliveries	HGV			4	4														
Substation	HGV									83	83	83							
AIL Cranage	HGV											20				20			
AIL Deliveries	HGV											69	69	69	69				
AIL Escorts	Car/LGV											55	55	55	55				
Fit Out, Commissioning & Testing	Car/LGV															60	60	60	40
Staff	Car/LGV	396	396	572	572	792	792	792	792	792	792	792	792	792	792	792	572	396	396
Total HGV		140	110	5,944	5,944	5,840	6,044	6,016	262	300	198	286	182	182	110	60	40	80	130
Total Cars / LGV		396	396	572	572	792	792	792	792	792	792	848	848	848	848	852	632	456	436
Total Movements		536	506	6,516	6,516	6,632	6,836	6,808	1,054	1,092	990	1,132	1,030	1,030	956	912	672	536	566
Total HGV per Day		8	6	272	272	266	276	274	12	14	10	14	10	10	6	4	2	4	6
Total Cars / LGV per Day		18	18	26	26	36	36	36	36	36	36	40	40	40	40	40	30	22	20
Total per Day		26	24	298	298	302	312	310	48	50	46	52	48	48	44	42	32	26	26

- 12.125 The peak of construction activity is expected to occur in month six for the proposed development, regardless of which access option is progressed.
- 12.126 In the scenario whereby Access Option 1 is progressed, there will be a total of 6,268 vehicle movements, which equates to 286 vehicle movements per day, comprising 250 two-way HGV movements (125 inbound trips and 125 outbound trips) and 36 two-way car / LGV movements (18 inbound trips and 18 outbound trips).
- 12.127 This would equate to approximately 24 two-way total vehicles movements or 20 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.
- 12.128 In the scenario whereby Access Option 2 is progressed, there will be a total of 6,836 vehicle movements, which equates to 312 vehicle movements per day, comprising 276 two-way HGV movements and 36 two-way car / LGV movements.
- 12.129 This would equate to approximately 26 two-way total vehicles movements or 23 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.

Distribution of Construction Trips

- 12.130 The distribution of development traffic on the network would vary depending on the types of loads being transported, with materials being delivered via the Site access junction from the north or south on the A83 (T). The assumptions for the distribution of construction traffic during the peak months will be as follows:
- All construction traffic enters the Site either via the new access junction on the A83 (T) or via the A83 (T) and Barr Glen Road (C20) through to the Site access junction, depending on which access option is progressed;
 - It is assumed that 100% of the aggregate materials for tracks and hardstandings etc. will be imported to the Site. It is assumed that the aggregate material will be delivered from quarries to the north or south. To allow for a suitably robust assessment, 100 % of the vehicle trips associated with this have been assigned to the A83 (T) north and south, to allow for both routing options to be assessed;
 - Deliveries associated with onsite batching of concrete, including sand and aggregates will arrive via the A83 (T) from the north or south. As above, to allow for a suitably robust assessment, 100% of the vehicle trips associated with this have been assigned to the A83 (T) north and south, to allow for both routing options to be assessed;
 - The BoP contractor will confirm final quarry and material sourcing with ABC in the CTMP;
 - HGV deliveries associated with the HV electrical installation, batteries and inverters etc will arrive via the A83 (T) from the Central Belt, approaching the Site from the north;
 - Staff working onsite are likely to be based locally with 30 % travelling from the south and 70 % from the north; and

- General Site deliveries will be predominantly from the north via the A83 (T). These are generally smaller rigid HGV vehicles.

12.131 For the purposes of this assessment, it has been assumed that all AIL traffic will access the proposed development Site via the following route:

- Loads will exit the port gate to contraflow Hall Street heading northwest;
- Loads will continue to contraflow the Campbeltown Market Cross Roundabout to join Kinloch Road;
- Loads will continue on the A83 (T) towards Glencraigs;
- Loads would turn left at the junction onto the U059 towards West Darlochan;
- Loads would turn right at the CS Wind UK junction in West Darlochan, where blade loads will be transferred from the blade lifting trailer to the superwing carrier;
- Loads would return to the A83 (T) junction to turn left heading northwest;
- Depending on the final access option, the loads would either make their way through to the proposed development via Barr Glen Road (C20), exiting the A83 (T) at Glenbarr, making use of an existing junction by-pass or newly constructed by-pass, or alternatively exit the A83 (T) north of Glenbarr at the newly constructed access junction, travelling through to the Site on new access tracks.

12.132 Following the distribution and assignment of traffic flows to the study area, the resultant daily traffic during the peak of construction (month six) are summarised in Table 12.19 for Access Option 1, while Table 12.20 illustrates the scenario for Access Option 2.

Table 12.19: Peak Construction Traffic (month six) – Access Option 1

Site Ref.	Survey Location	Cars & Lights	HGVs	Total
1	A83 (T), north of Glenbarr Primary School	26	250	276
2	Barr Glen Road (C20), east of Glenbarr	36	250	286
3	A83 (T) at West Tarbert	26	250	276
4	A83 (T) at Kennacraig	26	250	276
5	A83 (T) north of Campbeltown	12	244	256

Please note minor variances due to rounding may occur.

Table 12.20: Peak Construction Traffic (month six) – Access Option 2

Site Ref.	Survey Location	Cars & Lights	HGVs	Total
1	A83 (T), north of Glenbarr Primary School	36	276	312
2	Barr Glen Road (C20), east of Glenbarr	-	-	-
3	A83 (T) at West Tarbert	26	276	302
4	A83 (T) at Kennacraig	26	276	302

Site Ref.	Survey Location	Cars & Lights	HGVs	Total
5	A83 (T) north of Campbeltown	12	268	280

Please note minor variances due to rounding may occur.

Predicted Construction Effects - Access Option 1

12.133 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 2028 Baseline traffic data. The resulting figures were compared with the weekday 2028 Baseline traffic to provide a percentage change in movements and are demonstrated in Table 12.21.

Table 12.21: Access Option 1 – 2028 Future Baseline plus Proposed Development - Traffic Impact Summary

Survey Location	Cars & Lights	HGVs	Total	Cars & Lights % Increase	HGVs % Increase	Total Traffic % Increase
A83 (T), north of Glenbarr Primary School	990	698	1,695	2.70%	55.85%	19.45%
Barr Glen Road (C20), east of Glenbarr	104	277	381	52.82%	942.15%	300.55%
A83 (T) at West Tarbert	1,889	752	2,641	1.40%	49.81%	11.67%
A83 (T) at Kennacraig	2,136	519	2,655	1.23%	92.99%	11.60%
A83 (T) north of Campbeltown	2,606	377	2,984	0.46%	182.91%	9.39%

Please note minor variances due to rounding may occur.

12.134 The total traffic movements are predicted to increase by a maximum of 300.55% on Barr Glen Road (C20), which would be used by all construction traffic should Access Option 1 be progressed. Whilst this increase could be considered significant, it is caused by the low level of vehicles using the road. To put the increase into perspective, the road will see an additional 286 total vehicle movements per day or approximately 24 vehicle movements per hour over the course of a typical 12-hour shift. This is not considered significant in terms of overall traffic flows.

12.135 On the rest of the study area, the highest total traffic increase is 19.45%, which occurs on the A83 (T) north of Glenbarr Primary School.

12.136 Table 12.21 shows that highest HGV traffic movements increase will also occur on Barr Glen Road (C20), which would be used by all construction traffic should Access Option 1 be progressed. At this location, it is estimated to increase by 942.15%. Whilst this increase could be considered statistically high, this is due to the extremely low level of HGVs currently using this road (27 HGVs per day). To put the increase into perspective, the road will see an additional 250 HGV movements per day or on average of 21 HGV movements per hour,

or less than one vehicle every two minutes, over the course of a typical 12-hour shift. This is not considered significant in terms of overall traffic flows.

- 12.137 Whilst the increase in HGVs is above 30% at all locations, the next highest HGV traffic movement increase would occur on the A83 (T) north of Campbelltown, where it is estimated to increase by 182.91%. To put the increase into perspective, the A83 (T) will see an additional 244 HGV movements per day or on average 20 HGV movements per hour, or one vehicle every three minutes, over the course of a typical 12-hour shift. This is not considered significant in terms of overall traffic flows.
- 12.138 It should be noted that construction traffic associated with the peak months will not impact on Hall Street in Campbelltown, which is only expected to be impacted by AIL delivery traffic during months 11 to 14 and this will be managed via the AIL TMP.
- 12.139 A review of existing theoretical road capacity has been undertaken for Scenario 1 using The NESa 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 12.22.

Table 12.22: Access Option 1 – 2028 Daily Traffic (12hr) Capacity Review Summary

Survey Location	2028 Baseline Flow	2028 Base + Development	Theoretical Road Capacity (12hr)	Spare Road Capacity %
A83 (T), north of Glenbarr Primary School	1,419	1,695	21,600	92.2%
Barr Glen Road (C20), east of Glenbarr	95	381	3,360	88.7%
A83 (T) at West Tarbert	2,365	2,641	21,600	87.8%
A83 (T) at Kennacraig	2,379	2,655	21,600	87.7%
A83 (T) north of Campbelltown	2,728	2,984	21,600	86.2%

Please note minor variances due to rounding may occur.

- 12.140 As previously advised, whilst some of the percentage increases of traffic on the road within the study area could be considered statistically high, in particular on Barr Glen Road (C20), where the increases in total traffic and HGV traffic is 300.55% and 942.15% respectively, the road has sufficient spare capacity to accommodate the additional traffic associated with the proposed development. 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 12.22 that only 11.3% of the capacity would be used. 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, it does go to show that the road can satisfactorily accommodate the predicted level of traffic.
- 12.141 The results indicate there are no road capacity issues with the addition of construction traffic associated with Access Option 1 for the proposed development and significant spare capacity exists within the trunk and local road network to accommodate all construction phase traffic.

12.142 which based on the is estimated to be in the order of 3,360

12.143 Based on the information provided in Table 12.21 for Access Option 1, taking cognisance of the guidance set out within the IEMA Guidelines to determine which links within the study area should be considered for detailed assessment, the following receptors have been taken forward:

- A83 (T) Road Users (Low Sensitivity);
- Barr Glen Road (C20) Users (High Sensitivity);
- Residents of Tarbert (High Sensitivity);
- Residents of Campbeltown (High Sensitivity);
- Residents along the A83 (T) (Low Sensitivity);
- Residents along the Barr Glen Road (C20) (Negligible Sensitivity); and
- Residents in Glenbarr (Medium Sensitivity).

12.144 Whilst Residents of Campbeltown are considered to be High Sensitivity, the actual impact of construction traffic with the exception of AILs will be minimal, as the majority of vehicular trips are associated with the movement of bulk aggregate materials, which would not travel through the town. These would be source from locations to the north of the town and as such when assessing the construction effects at this location, this has been allowed for and the Significance Criteria amended accordingly.

12.145 With regards to Barr Glen Road (C20), it is considered that given the proximity to the proposed development and given the fact that 100 % of construction traffic will use the road, should Access Option 1 be progressed, the effect on both users of the road and residents will be Significant, based on professional judgement and taking account of information provided by local residents and road users from their experience when the road was used to access Blary Hill Wind Farm during its construction. As such, a combined assessment on the effect of construction traffic has been undertaken on these receptors to ensure a robust assessment.

12.146 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 12.23 summarises the significance on the receptors for the construction phase.

Table 12.23: Construction Phase Effects Summary – Access Option 1

Receptors	Severance	Driver Delay	Pedestrian Delay	Non-motorised User Amenity	Fear & Intimidation	Road Safety	Large Loads
A83 (T) Road Users	Slight	Sight / Neutral	Slight	Slight	Slight	Slight	Moderate / Slight
Barr Glen Road (C20) Users	Large	Large / Moderate	Moderate / Slight	Large	Large	Moderate / Slight	Large

Receptors	Severance	Driver Delay	Pedestrian Delay	Non-motorised User Amenity	Fear & Intimidation	Road Safety	Large Loads
Residents of Tarbert	Slight	Moderate / Slight	Moderate / Slight	Moderate / Slight	Moderate / Slight	Moderate / Slight	N/A
Residents of Campbeltown	Slight	Moderate / Slight	Moderate / Slight	Moderate / Slight	Moderate / Slight	Moderate / Slight	Large
Residents along the A83 (T)	Slight	Sight / Neutral	Slight	Moderate / Slight	Slight	Slight	Moderate / Slight
Residents along the Barr Glen Road (C20)	Large	Large / Moderate	Moderate / Slight	Large	Large	Moderate / Slight	Large
Residents in Glenbarr	Slight	Sight / Neutral	Slight	Moderate	Slight	Slight	Large / Moderate

12.147 The assessment of significance for Access Option 1 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 12.59 where effects are Large / Moderate or Moderate / Slight, professional judgement has been used to determine which option should be applicable:

- Barr Glen Road (C20) Users;
- Residents of Tarbert;
- Residents of Campbeltown;
- Residents along the Barr Glen Road (C20); and
- Residents in Glenbarr.

12.148 It should be noted that the impacts relate solely to the peak of construction activities and that the construction period is temporary (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.

Predicted Construction Effects - Access Option 2

12.149 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 2028 Baseline traffic data. The resulting figures were compared with the weekday 2028 Baseline traffic to provide a percentage change in movements and are demonstrated in Table 12.24.

Table 12.24: Access Option 2 – 2028 Future Baseline plus Proposed Development - Traffic Impact Summary

Survey Location	Cars & Lights	HGVs	Total	Cars & Lights % Increase	HGVs % Increase	Total Traffic % Increase
A83 (T), north of Glenbarr Primary School	1,000	724	1,731	3.73%	61.66%	21.99%
Barr Glen Road (C20), east of Glenbarr	68	27	95	0.00%	0.00%	0.00%
A83 (T) at West Tarbert	1,889	778	2,667	1.40%	54.99%	12.77%
A83 (T) at Kennacraig	2,136	545	2,681	1.23%	102.66%	12.70%
A83 (T) north of Campbeltown	2,606	401	3,008	0.46%	200.90%	10.27%

Please note minor variances due to rounding may occur.

- 12.150 The total traffic movements are predicted to increase by a maximum of 21.99% on A83 (T), north of Glenbarr Primary School, where the new access junction would be located for Access Option 2 and where all construction traffic would pass. At this location, there would be an additional 312 total vehicle movements per day or approximately 26 vehicle movements per hour over the course of a typical 12-hour shift. This is not considered significant in terms of overall traffic flows.
- 12.151 On the rest of the study area, the highest total traffic increase is 12.77%, which occurs on the A83 (T) west of Tarbert.
- 12.152 Table 12.24 shows that highest HGV traffic movements increase would occur on the A83 (T) north of Campbeltown, which would be used those vehicle routing to the Site should a quarry at this location be used. At this location, it is estimated to increase by 200.90%. To put the increase into perspective, the road will see an additional 268 HGV movements per day or on average 22 HGV movements per hour, or one vehicle every two to three minutes, over the course of a typical 12-hour shift. This is not considered significant in terms of overall traffic flows.
- 12.153 All roads with the exception of Barr Glen Road (C20) will see an increase in HGVs of over 30%, with the next highest HGV traffic movement increase would occur on the A83 (T) at Kennacraig, where it is estimated to increase by 102.66%. To put the increase into perspective, the A83 (T) will see an additional 276 HGV movements per day or on average 23 HGV movements per hour, or one vehicle every two to three minutes, over the course of a typical 12-hour shift. This is not considered significant in terms of overall traffic flows.
- 12.154 It should be noted that construction traffic associated with the peak months will not impact on Hall Street in Campbeltown, which is only expected to be impacted by AIL delivery traffic during months 11 to 14 and this will be managed via the AIL TMP.

12.155 A review of existing theoretical road capacity has been undertaken for Scenario 2 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 12.25.

Table 12.25: Access Option 2 – 2028 Daily Traffic (12hr) Capacity Review Summary

Survey Location	2028 Baseline Flow	2028 Base + Development	Theoretical Road Capacity (12hr)	Spare Road Capacity %
A83 (T), north of Glenbarr Primary School	1,419	1,731	21,600	92.0%
Barr Glen Road (C20), east of Glenbarr	95	95	3,360	97.2%
A83 (T) at West Tarbert	2,365	2,667	21,600	87.7%
A83 (T) at Kennacraig	2,379	2,681	21,600	87.6%
A83 (T) north of Campbeltown	2,728	3,008	21,600	86.1%

Please note minor variances due to rounding may occur.

12.156 The results indicate there are no road capacity issues with the addition of construction traffic associated with Access Option 2 for the proposed development and significant spare capacity exists within the trunk and local road network to accommodate all construction phase traffic.

12.157 Based on the information provided in Table 12.24 for Access Option 2, taking cognisance of the guidance set out within the IEMA Guidelines to determine which links within the study area should be considered for detailed assessment, the following receptors have been taken forward:

- A83 (T) Road Users (Low Sensitivity);
- Residents of Tarbert (High Sensitivity);
- Residents of Campbeltown (High Sensitivity);
- Residents along the A83 (T) (Low Sensitivity); and
- Residents in Glenbarr (Medium Sensitivity).

12.158 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 12.26 summarises the significance on the receptors for the construction phase.

Table 12.26: Construction Phase Effects Summary – Access Option 2

Receptors	Severance	Driver Delay	Pedestrian Delay	Non-motorised User Amenity	Fear & Intimidation	Road Safety	Large Loads
A83 (T) Road Users	Slight	Sight / Neutral	Slight	Slight	Slight	Slight	Moderate / Slight
Residents of Tarbert	Slight	Moderate / Slight	Moderate / Slight	Moderate / Slight	Moderate / Slight	Moderate / Slight	N/A
Residents of Campbeltown	Slight	Moderate / Slight	Moderate / Slight	Moderate / Slight	Moderate / Slight	Moderate / Slight	Large
Residents along the A83 (T)	Slight	Sight / Neutral	Slight	Moderate / Slight	Slight	Slight	Moderate / Slight
Residents in Glenbarr	Slight	Sight / Neutral	Slight	Moderate	Slight	Slight	Large / Moderate

12.159 The assessment of significance for Access Option 2 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 12.59, where effects are Large / Moderate or Moderate / Slight, professional judgement has been used to determine which option should be applicable:

- Residents of Tarbert;
- Residents of Campbeltown; and
- Residents in Glenbarr.

12.160 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

12.161 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

12.162 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.

- 12.163 Prior to decommissioning of the site, a traffic assessment would be undertaken, and appropriate traffic management procedures followed.

Mitigation Measures and Monitoring

Pre-Construction

Passing Place Review

- 12.164 The Applicant is aware of concerns raised by the local community regarding the impacts of construction activities on the local road network, specifically in relation to impacts on Barr Glen Road (C20) and the potential impacts of construction vehicles restricting access to properties along the road. It is understood that these concerns are based on experiences during the construction of the operational Blary Hill Wind Farm, and as such the Applicant is committed to learning from these concerns and providing appropriate mitigation during the construction of the proposed development.
- 12.165 It should also be noted that, the majority of these issues relate to Barr Glen Road (C20) and given that other access options are under consideration at this time, the potential impact on the road could be significantly reduced, with the construction of the by-pass track option (Access Option 2).
- 12.166 The Applicant is committed to investigating further mitigation measures, by way of undertaking a review of the proposed access route, to determine whether there is a requirement for the provision of new temporary passing places or upgrades to existing passing places on the access route, within the public road boundary or land under their control. The passing places would be used by vehicles associated with the proposed development and existing road users. They would be constructed to the appropriate standards to accommodate HGV traffic and allow for the two-way movement of vehicles.
- 12.167 It is considered that the provision of passing places at strategic locations on the access route, primarily at locations where the carriageway width reduces, would assist in relieving the build-up of traffic and the resultant driver frustration. It is considered that the requirement for the access review can be secured by an appropriately worded planning condition and undertaken post consent in full consultation with ABC.

Road Upgrade Works

- 12.168 Should the option to access the proposed development via Barr Glen Road (C20) be taken forward, whether using the road in its entirety or only a section of it, there will be a requirement to upgrade sections of the road to accommodate AIL traffic associated with the wind turbine components.
- 12.169 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 ABC, with a specialist traffic management contractor employed to minimise the potential impact on existing road users as far as practicable.

12.170 It is considered that the works on Barr Glen Road (C20) and the mitigation works / traffic management required to construct it can be secured by a suitably worded planning condition with ABC.

Construction Phase

Construction Traffic Management Plan

12.171 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 ABC.

12.172 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 ABC, TS and other relevant stakeholders. Works which will be required to facilitate turbine deliveries are outlined in the AIL RSR, which is included as 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 ABC and TS should a new junction be provided on the A83 (T);
- Normal site working hours will be limited to between 0700 and 1900 Monday to Friday and 0700 and 1300 on Saturdays, although 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 A83 (T) and Barr Glen Road (C20) leading through to the Site and in the vicinity of the Site access junction to avoid conflict with general traffic, subject to the agreement of TS and ABC. 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 A83 (T) in the vicinity of the junction with Barr Glen Road (C20) or the proposed junction to the north of Glenbarr Primary School, in the vicinity of the school, and along Barr Glen Road (C20), with all locations agreed with TS and ABC;
- All drivers will be required to attend an induction to include:

- A toolbox talk safety briefing;
- The need for appropriate care and speed control;
- A briefing on driver speed reduction agreements (to slow site traffic at sensitive locations, for example along Barr Glen Road (C20) and in the vicinity of the primary school); and
- Identification of the required access routes and the controls to ensure no departure.

Road Condition Survey

- 12.173 It is anticipated that ABC will require an agreement to cover the cost of abnormal wear and tear on Barr Glen Road (C20) and TS may require similar on the A83 (T) in the vicinity of Glenbarr. This would be dependent on which access option is progressed.
- 12.174 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 ABC and TS. 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.
- 12.175 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.
- 12.176 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

- 12.177 An AIL Transport Management Plan will be developed. All AIL deliveries would be undertaken at appropriate times (to be discussed and agreed with ABC, 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.
- 12.178 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.

12.179 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).

12.180 The location and numbers of signs would be agreed post consent and would form part of the wider Traffic Management Proposal for the project.

12.181 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

12.182 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.

12.183 Information will relate to expected vehicle movements from the PoE at Campbelltown Harbour 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.

12.184 The Applicant will also ensure information is distributed through its communication team via the project website, local newsletters, and social media.

Convoy System

12.185 A police escort will be required to facilitate the delivery of the predicted ALLs. 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.

- 12.186 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.
- 12.187 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

- 12.188 Consideration has been given to pedestrians, cyclists and equestrians alike due to potential interactions between construction traffic and users of paths / tracks, public roads and Core Paths. If required, a Path Planning Study will be conducted post consent and will be secured through an appropriately worded planning condition. Findings from the study will be used to formulate a set of measures into an Outdoor Access Management Plan (OAMP).
- 12.189 Users of the Core Paths / 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.
- 12.190 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.
- 12.191 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.
- 12.192 On similar schemes The British Horse Society, has provided comment on the potential for interaction between horses and construction traffic. As such those measures implemented on these 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.
- 12.193 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.

12.194 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

12.195 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

12.196 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.

Cumulative Effects

12.197 As detailed earlier, there are five consented onshore wind farms and one other energy development which could potentially impact the roads within the study area, namely Clachaig Glen Wind Farm, Eascairt Wind Farm, Tangy IV Wind Farm, Airigh Wind Farm, Rowan Wind Farm, and Crossaig North.

12.198 A combined sensitivity review for both Access Option 1 and Access Option 2 has been undertaken to inform the planning authorities of possible increases in traffic flows if the proposed development and aforementioned consented schemes were to be constructed concurrently.

12.199 The peak flows for the six schemes were obtained from their respective planning application documents and then compared to the future baseline (2028). Table 12.27 to Table 12.29 provides the combined sensitivity review for Access Option 1, while Table 12.30 to Table 12.31 provide it for Access Option 2.

Table 12.27: Combined Scheme Sensitivity Review Peak Traffic Summary – Access Option 1

Survey Location	Proposed Development		Clachaig Glen Wind Farm		Eascairt Wind Farm		Tangy IV Wind Farm		Airigh Wind Farm		Rowan Wind Farm		Crossaig North, Substation / Overhead Line	
	Cars & Lights	HGV	Cars & Lights	HGV	Cars & Lights	HGV	Cars & Lights	HGV	Cars & Lights	HGV	Cars & Lights	HGV	Cars & Lights	HGV
A83 (T), north of Glenbarr Primary School	26	250	60	140	50	62	59	30	0	73	51	70	34	19
Barr Glen Road (C20), east of Glenbarr	36	250	-	-	-	-	-	-	-	-	-	-	-	-
A83 (T) at West Tarbert	26	250	60	140	50	62	59	30	0	73	51	70	34	19
A83 (T) at Kennacraig	26	250	60	140	50	62	59	30	0	73	51	70	34	19
A83 (T) north of Campbeltown	12	244	60	140	50	62	59	30	0	73	51	70	34	19

Please note minor variances due to rounding may occur.

Table 12.28: Access Option 1 – 2028 Future Baseline Combined Scheme – Traffic Impact Summary

Survey Location	Cars & Lights	HGVs	Total	Cars & Lights % Increase	HGVs % Increase	Total Traffic % Increase
A83 (T), north of Glenbarr Primary School	1,244	1,092	2,343	29.04%	143.87%	65.13%
Barr Glen Road (C20), east of Glenbarr	104	277	381	52.82%	942.15%	300.55%
A83 (T) at West Tarbert	2,143	1,146	3,289	15.03%	128.32%	39.08%
A83 (T) at Kennacraig	2,390	913	3,303	13.27%	239.53%	38.85%
A83 (T) north of Campbeltown	2,860	771	3,632	10.25%	478.26%	33.14%

Please note minor variances due to rounding may occur.

Table 12.29: Combined Scheme – 2028 Daily Traffic (12hr) Capacity Review Summary – Access Option 1

Survey Location	2028 Baseline Flow	2028 Base + Development + Committed Developments	Theoretical Road Capacity (12hr)	Spare Road Capacity %
A83 (T), north of Glenbarr Primary School	1,419	2,343	21,600	89.2%
Barr Glen Road (C20), east of Glenbarr	95	381	3,360	88.7%
A83 (T) at West Tarbert	2,365	3,289	21,600	84.8%
A83 (T) at Kennacraig	2,379	3,303	21,600	84.7%
A83 (T) north of Campbeltown	2,728	3,632	21,600	83.2%

Please note minor variances due to rounding may occur.

- 12.200 Table 12.28 shows that there are increases in total and HGV flows when considering all schemes being constructed concurrently compared to the percentage increases associated with the proposed development being constructed alone (see Table 12.20). The only road that does not see an increase is Barr Glen Road (C20) as no other scheme is using this road for access.
- 12.201 Based on the road capacity results shown in Table 12.29 and comparing these to the capacity results for the proposed development only in Table 12.22, there would still be no road capacity issues should the proposed development and other schemes be constructed at the same time, with ample spare capacity within the study area road network to accommodate construction phase traffic.

Table 12.30: Combined Scheme Sensitivity Review Peak Traffic Summary – Access Option 2

Survey Location	Proposed Development		Clachaig Glen Wind Farm		Eascairt Wind Farm		Tangy IV Wind Farm		Airigh Wind Farm		Rowan Wind Farm		Crossaig North, Substation / Overhead Line	
	Cars & Lights	HGV	Cars & Lights	HGV	Cars & Lights	HGV	Cars & Lights	HGV	Cars & Lights	HGV	Cars & Lights	HGV	Cars & Lights	HGV
A83 (T), north of Glenbarr Primary School	36	276	60	140	50	62	59	30	0	73	51	70	34	19
Barr Glen Road (C20), east of Glenbarr	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A83 (T) at West Tarbert	26	276	60	140	50	62	59	30	0	73	51	70	34	19
A83 (T) at Kennacraig	26	276	60	140	50	62	59	30	0	73	51	70	34	19
A83 (T) north of Campbeltown	12	268	60	140	50	62	59	30	0	73	51	70	34	19

Please note minor variances due to rounding may occur.

Table 12.31: Access Option 2 – 2028 Future Baseline Combined Scheme – Traffic Impact Summary

Survey Location	Cars & Lights	HGVs	Total	Cars & Lights % Increase	HGVs % Increase	Total Traffic % Increase
A83 (T), north of Glenbarr Primary School	1,254	1,118	2,379	30.08%	149.68%	67.66%
Barr Glen Road (C20), east of Glenbarr	68	27	95	0.00%	0.00%	0.00%
A83 (T) at West Tarbert	2,143	1,172	3,315	15.03%	133.50%	40.18%
A83 (T) at Kennacraig	2,390	939	3,329	13.27%	249.20%	39.94%
A83 (T) north of Campbeltown	2,860	795	3,656	10.25%	496.25%	34.02%

Please note minor variances due to rounding may occur.

Table 12.32: Combined Scheme – 2028 Daily Traffic (12hr) Capacity Review Summary – Access Option 2

Survey Location	2028 Baseline Flow	2028 Base + Development + Committed Developments	Theoretical Road Capacity (12hr)	Spare Road Capacity %
A83 (T), north of Glenbarr Primary School	1,419	2,379	21,600	89.0%
Barr Glen Road (C20), east of Glenbarr	95	95	3,360	97.2%
A83 (T) at West Tarbert	2,365	3,315	21,600	84.7%
A83 (T) at Kennacraig	2,379	3,329	21,600	84.6%
A83 (T) north of Campbeltown	2,728	3,656	21,600	83.1%

Please note minor variances due to rounding may occur.

- 12.202 Table 12.31 shows that there are increases in total and HGV flows when considering all schemes being constructed concurrently compared to the percentage increases associated with the proposed development being constructed alone (see Table 12.23).
- 12.203 Based on the road capacity results shown in Table 12.32 and comparing these to the capacity results for the proposed development only in Table 12.25, there would still be no road capacity issues should the proposed development and other schemes be constructed at the same time, with ample spare capacity within the study area road network to accommodate construction phase traffic.
- 12.204 The Applicant would welcome the opportunity to engage with other developers in consultation with ABC and TS to ensure appropriate traffic management measures would be implemented to minimise any cumulative impacts. In the event of all the sites being constructed at the same time it is suggested this would be mitigated through the use of an overarching TMMP for all of the sites and by introducing a phased delivery plan which would be agreed with ABC, TS and Police Scotland.
- 12.205 Furthermore, it is not predicted that the potential traffic flow increases would ever occur on the study area, as it is extremely unlikely that the peak traffic conditions will occur at the same time due to differences in construction programmes, material supplies and developer resources. In addition, those schemes already consented will likely begin construction prior to the proposed development gaining planning consent.

Residual Effects

- 12.206 An evaluation of the potential effects of the increase in traffic on the study area roads used for construction traffic was undertaken for both Access Option 1 and Access Option 2 for the proposed development. The summary of these assessments is provided in Table 12.33 and Table 12.34.
- 12.207 No road capacity issues are predicted within the study area during the construction phase.
- 12.208 Significant effects were identified for the following receptors for each of the access options:

Access Option 1

- Barr Glen Road (C20) Users;
- Residents of Campbeltown;
- Residents along the Barr Glen Road (C20); and
- Residents in Glenbarr.

Access Option 2

- Residents of Campbeltown; and
- Residents in Glenbarr.

- 12.209 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.

- 12.210 It should be acknowledged that the assessment has focussed on the peak in construction traffic activities and that the percentage increases in particular on Barr Glen Road (C20) are statistically high, however this is due to the existing low level of total and HGV traffic. This would however only occur if Access Option 1 is progressed, and suitable mitigation measures have been proposed to minimise as far as practicable the impacts at this location.
- 12.211 The construction period is transitory in nature and all impacts would be short lived and temporary. No significant residual effects are predicted during construction.
- 12.212 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

- 12.213 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.
- 12.214 Table 12.33 and Table 12.34 summarises the assessment of residual effects identified in the evaluation with mitigation in place for Access Option 1 and Access Option 2 respectively.

Table 12.33: Summary of Residual Effects – Access Option 1

Receptor and Summary of Predicted Effect	Significance	Mitigation Measures	Residual Impact
Access Option 1			
Barr Glen Road (C20) Users / Residents			
Severance	Significant	Implementation of CTMP, provision of construction traffic road signage and provision of localised road improvement works.	Not significant (Slight)
Driver Delay	Significant	Implementation of CTMP, provision of construction traffic road signage and provision of localised road improvement works.	Not significant (Slight)
Pedestrian Delay	Not Significant	Implementation of CTMP, OAMP, provision of construction traffic road signage and provision of localised road improvement works.	Not significant (Slight)
Non-motorised User Amenity	Significant	Implementation of CTMP, OAMP, 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	Not significant (Slight)

Receptor and Summary of Predicted Effect	Significance	Mitigation Measures	Residual Impact
Access Option 1			
		signage and provision of localised road improvement works.	
Road Safety	Significant	Implementation of CTMP, provision of construction traffic road signage and provision of localised road improvement works.	Not significant (Slight)
Large Loads	Significant	ALL TMP, convoy escorts for ALL movements, provision of localised road improvement works.	Not significant (Slight)
Residents of Campbeltown and Glenbarr			
Severance	Not Significant	Implementation of CTMP, provision of construction traffic road signage and provision of localised road improvement works.	Not significant (Slight)
Driver Delay	Significant	Implementation of CTMP, provision of construction traffic road signage and provision of localised road improvement works.	Not significant (Slight)
Pedestrian Delay	Not 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	Not Significant	Implementation of CTMP, provision of construction traffic road signage and provision of localised road improvement works.	Not significant (Slight)
Road Safety	Significant	Implementation of CTMP, provision of construction traffic road signage and provision of localised road improvement works.	Not significant (Slight)
Large Loads	Significant	ALL TMP, convoy escorts for ALL movements, provision of localised road improvement works.	Not significant (Slight)

Table 12.34: Summary of Residual Effects – Access Option 2

Receptor and Summary of Predicted Effect	Significance	Mitigation Measures	Residual Impact
Access Option 2			
Residents of Campbeltown and Glenbarr			
Severance	Not Significant	Implementation of CTMP, provision of construction traffic road signage.	Not significant (Slight)
Driver Delay	Significant	Implementation of CTMP, provision of construction traffic road signage.	Not significant (Slight)
Pedestrian Delay	Not Significant	Implementation of CTMP, provision of construction traffic road signage.	Not significant (Slight)
Non-motorised User Amenity	Significant	Implementation of CTMP, provision of construction traffic road signage.	Not significant (Slight)
Fear & Intimidation	Not Significant	Implementation of CTMP, provision of construction traffic road signage.	Not significant (Slight)
Road Safety	Significant	Implementation of CTMP, provision of construction traffic road signage.	Not significant (Slight)
Large Loads	Significant	AIL TMP, convoy escorts for AIL movements, provision of localised road improvement works.	Not significant (Slight)

Summary

12.215 The proposed development would lead to a temporary increase in traffic volumes on the study area road network during the construction phase. Traffic volumes would decrease considerably outside the peak period of construction.

12.216 Two potential access options for the proposed development are currently under consideration, which are as follows:

- Access Option 1 - From the A83 (T) via Barr Glen Road (C20) through to the Blary Hill Wind Farm access junction; and
- Access Option 2 - From the A83 (T) via a newly constructed junction and access track to the north of Glenbarr Primary School, by-passing Barr Glen Road (C20) in its entirety, tying into the main Site access junction to the west of Arnicle.

12.217 The peak of construction activity is expected to occur in month six for the proposed development, regardless of which access option is progressed.

12.218 In the scenario whereby Access Option 1 is progressed, there will be a total of 6,268 vehicle movements, which equates to 286 vehicle movements per day, comprising 250 two-way HGV movements and 36 two-way car / LGV movements. This would equate to

approximately 24 two-way total vehicles movements or 20 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.

- 12.219 In the scenario whereby Access Option 2 is progressed, there will be a total of 6,836 vehicle movements, which equates to 312 vehicle movements per day, comprising 276 two-way HGV movements and 36 two-way car / LGV movements. This would equate to approximately 26 two-way total vehicles movements or 23 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.
- 12.220 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.
- 12.221 A sensitivity review was undertaken to inform the planning authorities of possible issues with other relevant schemes in the area, whose construction traffic would impact the study area, should they be constructed concurrently. The review found that there would be more than sufficient spare road capacity to accommodate all schemes being constructed at the same time. It is proposed that any effects of all the sites being constructed at the same time would be mitigated through the use of an overarching TMMP, which can be co-ordinated with the Council.
- 12.222 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.
- 12.223 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.
- 12.224 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.
- 12.225 AIL mitigation works can be designed to be temporary in nature to enable restoration to their original condition (if required by the Council and TS).

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Allt Domhain Wind Farm

Environmental Impact Assessment Report Volume 1 Chapter 13: Socio-economics, Recreation and Tourism

June 2025

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13 SOCIO-ECONOMICS, RECREATION AND TOURISM

Introduction

- 13.1 This chapter considers the potential effects of Allt Domhain 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: Transport and Access 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 (AEMA) with 0.5 years of 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. The policies set out include those from the Argyll and Bute Council Local Development Plan (LDP) relevant aspects of NPF4 (National Planning Framework 4)(2023), Planning Advice Notes and other relevant guidance.

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.

Argyll and Bute Council Local Development Plan 2 ^{iv}

- 13.13 The Local Development Plan sets out a strategy for the growth of all communities across the Argyll and Bute Council area, whilst placing an emphasis on sustainability. The plan recognises the tourism sector's significant contribution to the Argyll and Bute 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 LDP 4: Supporting the Sustainable Development of Our Tourism. This policy promotes the sustainable development of tourism, ensuring that new developments do not negatively impact the tourism sector.
- Policy LDP 5: Supporting the Sustainable Growth of Our Economy. This policy focuses on promoting sustainable economic growth, including the development of projects that can provide economic benefits to local communities.
- Policy LDP 9: Protecting Our Outstanding Environment. This policy emphasises the protection of the natural environment, which is crucial for maintaining the attractiveness of the area for tourists. Developments need to consider their impact on the landscape and natural beauty of the region.
- Policy LDP 10: Maximising Our Resources and Reducing Our Consumption. This policy encourages the development of renewable energy sources to reduce reliance on non-renewable resources and support local economic development.
- Policy LDP 11: Improving Our Connectivity and Infrastructure. This policy supports the development of infrastructure that enhances connectivity and access to recreational areas which can be relevant for developments that may impact local recreational activities.
- Policy LDP 13: Protecting, Enhancing and Promoting Our Green Infrastructure. This policy aims to protect and enhance green infrastructure, including recreational spaces, which should be considered when assessing the impact of developments on local recreation.

Argyll and Bute Renewable Energy Action Plan (undated)

13.15 The Action Plan recognises the opportunities for Argyll and Bute in relation to developing renewable energy. It acknowledges the supply chain which exists to enable renewable energy developments, and the levels of community benefit that are being delivered. The Action Plan notes that there are wide ranging benefits to be delivered by renewable energy projects, including those related to:

- Improved transport and connectivity;
- Existing and future supply chain;
- The commercial use of land; and
- Skills and recruitment.

13.16 The Action Plan sets out a list of actions made in 2018/19 for the Argyll and Bute Renewable Alliance targeted at each of the areas of benefit above.

Guidance

13.17 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

- 13.18 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.
- 13.19 The Scoping Opinion was received from Argyll and Bute Council on 2nd June 2021.
- 13.20 Consultation relevant to the Socio-economics, Recreation and Tourism assessment was undertaken with the Argyll and Bute 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: Consultation Responses

Consultee	Date Received	Consultation Response	Where and how is this addressed?
East Kintyre Community Council	09/03/2021	'We request a full assessment of the economic impact on the windfarm on East Kintyre's only APQ'	Table 6.7 in Chapter 6: Landscape & Visual Impact Assessment includes the design consideration of the APQ, and details that the turbines will not be visible on the skylines from the Kintyre coastal areas. Alongside this, BiGGAR Economics has conducted a wide range of studies that conclude the construction of wind farms does not negatively impact local tourism economies ^v .
West Kintyre Community Council	23/03/2021	'the importance of tourism to the economy cannot be underestimated'	Assessment of tourism and its effect on the local economy is included as part of the Socio-economics, Recreation and Tourism assessment.
Argyll and Bute Council	02/06/2021	'Proposals will be assessed against the following criteria: Net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities.'	Economic impacts are assessed as part of the Socio-economics aspect of the Report.
Argyll and Bute Council	02/06/2021	'Impacts on communities and individual dwellings.'	The RVAA Technical Appendix 6.3 of Chapter 6: Landscape and Visual Impact Assessment highlights that whilst there will be significant impact on views from five properties, none of the properties would be affected by the proposed

Consultee	Date Received	Consultation Response	Where and how is this addressed?
			development in terms of their residential visual amenity.
Argyll and Bute Council	02/06/2021	'Public access, including impact on long distance walking and cycling routes and those scenic routes identified in the NPF.'	Table 13.11 includes the summary of significance on each receptor in the Study Area, including Core Paths and National Cycle Network Routes.
Argyll and Bute Council	02/06/2021	'Impacts on tourism and recreation.'	Tourism and Recreation are assessed within the Socio-economics, Recreation and Tourism chapter.
Argyll and Bute Council	02/06/2021	'This chapter of the EIAR should address the consequences of the development for users of the countryside, and tourism and recreation interests, including any deterrent influence the proposal may have, along with any attractive influence the presence of the proposal may generate'	The impact on users of the countryside, and tourism and recreation interests, is discussed in the Table 13.11. Attractive influence is discussed in the Mitigation section of the report.
Energy Consents Unit	09/03/2021	'It is vital that any off road tracks or non-motorised user's tracks or paths are multi-use catering for all including horse riders and carriage drivers.'	There will be no Significant impacts as recorded in Chapter 12: Traffic and Transport.
Energy Consents Unit	09/03/2021	'Level crossings which are currently used by equestrians should not be replaced by alternatives which would preclude the use by equestrians, for example, a footbridge.'	There will be no Significant impacts as recorded in Chapter 12: Traffic and Transport.

Assessment Methodology and Significance

Scope of Assessment

- 13.21 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 references are 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

13.22 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 is included.
- Potential effects upon tourism and recreation are considered as are 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

13.23 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

13.24 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

13.25 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

13.26 Assessment of economic effects has considered the study areas of the administrative area of Argyll and Bute as well as Scotland as a whole.

Tourism and Recreation Effects

13.27 The tourism and recreation assessment focuses on a 10km 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**, and **Chapter 11: Noise**.

Desk Based Study and Data Sources

13.28 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

- 13.29 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.
- 13.30 This socio-economic, recreation and tourism assessment follows the approach set out in the Scoping Report submitted in February 2021 and conforms with the subsequent Scoping Opinion issued by Scottish Ministers (June 2021). In doing so, it takes into consideration associated consultation responses from statutory and other consultees.

Assessment of Significance

Sensitivity

- 13.31 Sensitivity criteria in terms of employment, economy and land use are shown in Table 13.2 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.

Sensitivity	Definition and Examples
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. Tourism/recreation: Where the receptor or resource is defined as being of local status.

Magnitude

13.32 The definitions describing the magnitude of change are shown in Table 13.3 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

13.33 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.

13.34 Table 13.4 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

- 13.35 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.
- 13.36 FTE job creation has been based on experience of previous similar developments and could vary depending on the final procurement and construction processes.
- 13.37 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.
- 13.38 Any further assumptions and limitations encountered during the assessment process will be set out in the EIA Report.

Baseline Conditions

- 13.39 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.
- 13.40 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

- 13.41 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 Campbelltown, located to the southeast of the Site.

- 13.42 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.

Employment & Investment

- 13.43 The Onshore Wind Policy Statement produced by the Scottish Government in 2022 sets out a new ambition for the deployment of onshore wind in Scotland: "A minimum installed capacity of 20GW of onshore wind in Scotland by 2030."
- 13.44 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.
- 13.45 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.
- 13.46 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^{viii}.
- 13.47 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^{ix}.
- 13.48 The BEIS report, Electricity Generation Costs 2020^x 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.
- 13.49 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^{xi}. 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.
- 13.50 This report notes that the Committee on Climate Change (CCC) 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.
- 13.51 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^{xiv}. 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.

13.52 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-based wind farm labour 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^{xv}.

13.53 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.

13.54 The Economic Impact of Scotland's Renewable Energy Sector 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.

13.55 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

13.56 Table 13.5 below shows Economic Activity Rates in Argyll and Bute^{xvi} compared to the rest of Scotland and Great Britain. 81.3% 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%). There are more males who are economically active than females, which is consistent 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.

13.57 The proportion of economically active males is higher in Argyll and Bute than in both Scotland (by 4.7%) and Great Britain (by 2.6%). Females are more economically active in Argyll and Bute (77.6%) than in both Scotland (74.1%) and Great Britain (75%).

Table 13.5: Economic Activity Rates in Argyll and Bute

	Argyll and Bute (Numbers)	Argyll and Bute (%)	Scotland (%)	Great Britain (%)
All People				
Economically Active	42,900	81.3	77.0	78.6
In Employment	41,800	79.1	74.5	75.5
Employees	35,800	69.0	66.1	66.0
Self-Employed	5,600	9.6	8.1	9.3
Unemployed	1,100	2.5	3.2	3.8
Males				
Economically Active	23,400	84.7	80.0	82.1
In Employment	22,700	82.3	77.0	78.8
Employees	18,200	67.1	66.1	66.5
Self-Employed	4,100	14.2	10.5	12.1
Unemployed	N/A	N/A	3.8	4.0
Females				
Economically Active	19,500	77.6	74.1	75.0
In Employment	19,000	75.6	72.1	72.3
Employees	17,500	71.1	66.2	65.5
Self-Employed	1,500	Sample size too small	5.7	6.6
Unemployed	N/A	N/A	2.6	3.6

13.58 Table 13.6 below shows that the biggest employment category in Argyll and Bute is professional occupations which accounts for 19.3% of those in employment, followed by elementary occupations (12.4%) and then skilled trade occupations (11.1%). Professional occupations make up a lower percentage of the workforce in Argyll and Bute than Scotland as a whole (25.2%).

Table 13.6: Employment by Occupation in Argyll and Bute

	Argyll and Bute (Numbers)	Argyll and Bute (%)	Scotland (%)	Great Britain (%)
Soc 2020 Major Group 1-3	18,400	43.9	48.5	53.4
1 Managers, Directors And Senior Officials	5,400	13.0	8.6	11.1
2 Professional Occupations	8,100	19.3	25.2	26.9
3 Associate Professional & Technical	4,900	11.7	14.5	15.3
Soc 2020 Major Group 4-5	8,000	19.3	19.6	18.0

	Argyll and Bute (Numbers)	Argyll and Bute (%)	Scotland (%)	Great Britain (%)
4 Administrative & Secretarial Occupations	3,400	8.1	9.8	9.3
5 Skilled Trades Occupations	4,700	11.1	9.7	8.6
Soc 2020 Major Group 6-7	7,400	17.6	16.1	14.3
6 Caring, Leisure And Other Service Occupations	4,100	9.9	9.6	8.4
7 Sales And Customer Service Occupations	3,200	7.7	6.5	5.9
Soc 2020 Major Group 8-9	8,00	19.2	15.8	14.3
8 Process Plant & Machine Operatives	2,800	6.8	6.2	5.5
9 Elementary Occupations	5,200	12.4	9.6	8.8

13.59 Table 13.7 below shows employee jobs by industry. The dominant industries for employment are Accommodation and Food Service Activities (14.3%), Human Health and Social Work Activities (12.9%) and then Wholesale And Retail Trade ; Repair Of Motor Vehicles And Motorcycles (11.4%), and Public Administration And Defence; Compulsory Social Security (11.4%). Accommodation and food service activities in particular is much higher in Argyll and Bute 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 Argyll and Bute

Employee Jobs by Industry	Argyll and Bute (Numbers)	Argyll and Bute (%)	Scotland (%)	Great Britain (%)
B : Mining And Quarrying	200	0.6	1.0	0.1
C : Manufacturing	1,750	5.0	7.0	7.5
D : Electricity, Gas, Steam And Air Conditioning Supply	350	1.0	0.8	0.4
E : Water Supply; Sewerage, Waste Management And Remediation Activities	200	0.6	0.8	0.7
F : Construction	1,750	5.0	5.1	4.8
G : Wholesale And Retail Trade; Repair Of Motor Vehicles And Motorcycles	4,000	11.4	13.3	13.7

Employee Jobs by Industry	Argyll and Bute (Numbers)	Argyll and Bute (%)	Scotland (%)	Great Britain (%)
H : Transportation And Storage	1,750	5.0	4.6	5.0
I : Accommodation And Food Service Activities	5,000	14.3	8.8	8.0
J : Information And Communication	500	1.4	3.2	4.6
K : Financial And Insurance Activities	175	0.5	3.3	3.4
L : Real Estate Activities	700	2.0	1.4	1.9
M : Professional, Scientific And Technical Activities	1,500	4.3	7.3	9.3
N : Administrative And Support Service Activities	2,500	7.1	7.0	8.7
O : Public Administration And Defence; Compulsory Social Security	4,000	11.4	6.5	4.7
P : Education	3,000	8.6	8.5	8.6
Q : Human Health And Social Work Activities	4,500	12.9	16.2	13.9
R : Arts, Entertainment And Recreation	1,250	3.6	2.8	2.6
S : Other Service Activities	500	1.4	1.7	1.9

- 13.60 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 Argyll and Bute is £702.90, lower than that for Scotland (£740.00) and Great Britain (£729.80). Full time male workers receive considerably more weekly pay in Argyll and Bute than females - £759.6 compared to £645.4.
- 13.61 Table 13.8 below shows that 18.7% 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 Argyll and Bute

All People	Argyll and Bute (Numbers)	Argyll and Bute (%)	Scotland (%)	Great Britain (%)
Total	9,300	18.7	23.0	21.4
Student	Sample size too small	Sample size too small	23.8	27.0
Looking After Family/Home	Sample size is too small	Sample size is too small	16.1	18.5
Temporary Sick	Not available	Not available	2.3	2.2
Long-Term Sick	4,400	47.4	33.7	27.9
Discouraged	Not available	Not available	Sample size too small	0.3
Retired	1,600	16.8	15.4	12.9
Other	Sample size is too small	Sample size is too small	8.3	11.1

- 13.62 According to the Scottish Development International, there are around 20,500 people in Scotland employed in the low carbon and renewable energy sector^{xvii}, with many of these being in wind electricity generation.
- 13.63 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^{xviii}. The Gross Value Added (GVA) from the energy sector in Argyll and Bute is substantial at £5m per annum. This is part of the broader economic impact expected from the Argyll and Bute Rural Growth Deal^{xix}.
- 13.64 The overall picture for Argyll and Bute is of a population that is slowly declining but with a higher rate of decline of those of a working age and children as the retired population increases. This is set against the Scottish context of increasing population with less of a decline in younger people at a national level.

Tourism and Recreation

Tourism – Economics

- 13.65 The Scottish Tourism Alliance has produced Scotland Outlook 2030 (2022)^{xx} 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.
- 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.

- 13.66 The significance of tourism in Argyll and the Isles is high – in 2023 the tourism sector employed 6,000 individuals in Argyll and Bute, making up 16.9% of Total Employment^{xxi}. 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^{xxii}. Tourism sustains some of the most remote and rural populations, providing essential employment opportunities and attracting investment.
- 13.67 In 2023, there were 461,000 total overnight visits by domestic and international visitors to Argyll and Bute, where 1.78 million total nights were spent in accommodation. The average overnight visitor spent £292^{xxiii}.
- 13.68 The COVID-19 pandemic had a significant impact on tourism within Argyll and Bute. 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 [HIE Area], 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^{xxiv}.
- 13.69 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^{xxv}.

Tourism – Visitor Attractions

- 13.70 According to the Visit Scotland Factsheet, the top 5 free visitor attractions in Argyll and the Isles in 2019 were:
- Argyll Forest Park, Cowal (151,538 visitors);
 - Staffa National Nature Reserve (107,725 visitors);
 - Oban War and Peace Museum (33,310 visitors);
 - Iona (29,808 visitors); and
 - Aros Park, Isle of Mull (19,710 visitors).

- 13.71 The top 5 paid attractions were:

- Inveraray Castle (125,462 visitors);
- Iona Abbey & St Columba Centre (Mull) (63,884 visitors);
- Oban Distillery Visitor Centre (57,031 visitors);
- Benmore Botanic Garden, Dunoon (53,318 visitors); and
- Mount Stuart, Isle of Bute (42,809 visitors).

- 13.72 None of the top 5 free or paid attractions within Argyll and Bute are located within the 10km study area.
- 13.73 Core paths and other walking routes are important for recreational purposes. Three core paths were detected within the Study Area^{xxvi}. One undesignated track was detected along the red line boundary, however it is not a designated route, so is as sensitive as any land under the 'right to roam' Land Reform (Scotland) Act 2003^{xxvii}.
- 13.74 In accordance with the Land Reform (Scotland) Act (2016)^{xxviii} 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.
- 13.75 Deer stalking is a century old tradition in the Argyll and Bute, attracting visitors throughout the year to hunt various species of deer. There is 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

- 13.76 Argyll and Bute, 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.
- 13.77 There are no National Cycle Network Routes located within the Study Area.
- 13.78 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

- 13.79 Argyll and Bute benefits from good electricity network connectivity and from the existing development of renewable energy generation in the area. On this basis, energy security for Argyll and Bute is considered to be of Medium sensitivity to change and therefore the impacts that would result from the proposed development.
- 13.80 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^{xxix}. Allenergy report that 44% of Argyll and Bute's population spends more than 10% of their income on domestic energy costs^{xxx}, therefore are in fuel poverty. That compares to the Scottish Government's calculation that, in 2019, 24.6% of the households in Scotland were living in fuel poverty^{xxxi}.

The Argyll and Bute Anti-Poverty Strategy^{xxxii} suggests that fuel poverty levels in both the region and Scotland have reduced slightly since 2017. The Strategy includes home energy and fuel as one of its six priority areas. As a result, Argyll and Bute is considered to be of High sensitivity when considering impacts on fuel poverty.

Cumulative Developments

13.81 Other Planned and Proposed Developments within the Study Area are detailed below:

Existing Wind Energy Developments:

- Beinn an Tuirc (0.2km) (likely to be decommissioned in 2028, subject to its application for life extension until 2034);
- Blary Hill (0.5km);
- Beinn an Tuirc II (1.1km);
- Auchadaduie (3.0km);
- Beinn an Tuirc III (3.2km);
- Deucheran Hill (6.2km);
- Tangy I (8.6km); and
- Tangy II (8.7km).

Consented Wind Energy Developments:

- Clachaig Glen (4.1km); and
- Tangy IV Repower (7.5km);

Application Wind Energy Developments:

- West Torrisdale (1.7km);
- Cnoc Buidhe (3.0km); and
- Killeen (6.0km).

Scoping Wind Energy Developments:

- Deucheran Hill 2 (4.6km).

13.82 These Planned and Proposed Developments are currently in the process of being consented/developed, and will feature throughout the Study Area when the proposed development is in construction.

Future Baseline

13.83 From the information acquired for this assessment, 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

- 13.84 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

- 13.85 Due to the similarities in activities between the construction and decommissioning phases, they are both considered within this section.

Economic Effects

- 13.86 The Review of Renewable Electricity Generation Cost and Technical Assumptions Study Report^{xxxiii} 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 9 turbines with a power output of 64.8MW, these figures would provide a capital cost for the Proposed Development of around £115m. The BEIS report, Electricity Generation Costs 2020^{xxxiv} estimates that by 2025, construction costs for onshore wind will be around £1m per MW. So for the proposed development, this would equal around £65m.
- 13.87 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^{xxxv}. The Renewable UK (RUK) Report (2015)^{xxxvi} 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%.
- 13.88 Using an expenditure distribution profile of 35% for onsite construction works, the proposed development could therefore generate capital expenditure of approximately £40m.
- 13.89 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 £7.8m to be spent within the Argyll and Bute Council area.

Wind Farm Decommissioning

- 13.90 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.
- 13.91 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

- 13.92 The RUK (2015) 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 Argyll and Bute Council area ranging at around 56 FTE (£7.8m ÷ £137,942).
- 13.93 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^{xxxvii} 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. So the construction phase would support approximately 139 FTE jobs in total in the local (Argyll and Bute) economy.

Significance Assessment

- 13.94 The overall economy of Argyll and Bute has a turnover of around £250m per annum^{xxxviii} and with total employment of 41,800, could be considered to be of a medium sensitivity. The economic and employment effects from the proposed development at the Argyll and Bute 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 Argyll and Bute, with 3,000 employees, the beneficial effects will be more noticeable within the sector, but still of a low magnitude and not significant.

Economy and Employment Effects – Operation

Economic Effects

- 13.95 The Review of Renewable Electricity Generation Cost and Technical Assumptions Study Report^{xxxiii} 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 9 turbines with a power output of 64.8MW, these figures would provide an annual operating cost for the proposed development of around £6m, and a lifetime operating cost of around £210m. The BEIS report, Electricity Generation Costs 2020^{xxxix} 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 £1.5m per year, or £53.3m over the lifetime of the development.
- 13.96 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 £630,000 in local spend each year (approximately £22m over the 35 year lifespan of the proposed development).

Employment Effects

- 13.97 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.
- 13.98 The BiGGAR Economics (2015)^{xi} 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 5.2 FTE (£630,000 ÷ £121,395) per annum.

Significance Assessment

- 13.99 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 Argyll and Bute Council level. With the economy of the Argyll and Bute 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

- 13.100 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. Both the Northern and Southern routes sought out by the Applicant for access will be using private roads to be used as a primary access road. In addition, access to recreational destinations and activities may be adversely affected by construction traffic and activities.
- 13.101 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.
- 13.102 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.
- 13.103 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

- 13.104 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 recreational receptors of the Study Area considered to have a medium sensitivity, this would result in a moderate adverse effect, which would be not significant.

Mitigation Measures and Monitoring

Community Benefit Fund

- 13.105 The Applicant has committed to providing local community funding of £5k per MW per annum (index linked or aligned with Scottish Government guidance), based on a fixed capacity of 64.8MW. This equates to £324,000 annually during the 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 a new community hub in Glenbarr, broadband upgrades, EV charging infrastructure across Kintyre, and support for the Kintyre 66 tourist route.
- 13.106 The community benefit fund will follow current Scottish Government guidelines, with funds made available to local communities and projects. It is anticipated that the Allt Domhain fund will be distributed through established Development Trusts – such as those in West, East, and South Kintyre – enabling them to allocate resources based on local priorities. Area Community Plans may guide how the funds are used.
- 13.107 The Applicant has engaged in discussions around potential uses and supports all suggestions. Final decisions will be made by the Development Trusts, including the West and East Kintyre Windfarm Trusts, which have experience managing similar funds from other windfarms (e.g., Cour and Beinn an Tuirc). These trusts have historically supported initiatives such as bursaries for higher and vocational education.
- 13.108 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.
- 13.109 Additional community benefits under consideration include local land initiatives, natural capital project, Atlantic rainforest restoration and creation, and support for tourism infrastructure.

Skills Enhancement

- 13.110 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.
- These interns will be recruited back where possible, to progress their skills and knowledge.
- 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

- The proposed development is in close proximity to other developments under the same Applicant. This increases the potential benefits that include: 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 being had.

13.111 The Planned and Proposed Developments within the Study Area have been detailed in the baseline in Section 13.80.

13.112 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

13.113 Chapter 6: Landscape & Visual Impact Assessment undertook viewpoint analysis that indicated significant visual effects are likely to affect limited locations within approximately 6.3km 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
Glenbarr Settlement	Major	Substantial to Major (due to Proposed Development (PD), Blary Hill, Auchadaduie,

Receptor	Level of effect (from the proposed development)	Combined level of effect
		Cnoc Buidhe, and to a lesser degree, PD)
The Kintyre Way (overlapped with C088, C094 and other Core Paths)	Major	Substantial (due to PD and other wind farms) to No View
Arran Coastal Way	Negligible	Major to Moderate (due to West Torrisdale) to No View
Core Path C304 – Glenbarr School Route	Substantial to Major	Substantial to Major (due to PD, Blary Hill, Auchadaduie)
Glenbarr Memorial	Substantial to Major	Substantial to Major (due to PD, Blary Hill, Auchadaduie, Cnoc Buidhe)
Glenbarr Abbey	Minor to No View	Major to Moderate (due to Cnoc Buidhe)

13.114 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.

Table 13.10: Assessment of the identified Visual Receptors

Receptor	Sensitivity of Receptor	Magnitude of Effect	Significance of Effect
The Kintyre Way near Loch na Naich(overlapped with C088, C094 and other Core Paths)	High – the Kintyre Way has National (Scotland) status as a tourism and recreation receptor.	Medium – the additional effect of the proposed development 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 rest of the route being largely unaffected.	Moderate adverse – Not Significant

Receptor	Sensitivity of Receptor	Magnitude of Effect	Significance of Effect
Arran Coastal Way – between Brown head (west of Corriecravie) and north of Catacol	High – the Arran Coastal Way has National (Scotland) status as a tourism and recreation receptor.	Medium – the additional effect of the proposed development would be Major as West Torrisdale Wind Farm also features on the path. 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.	Moderate adverse - Not Significant
Core Path C304 – Glenbarr School Route	Medium – Core Paths have regional status as tourism and recreational receptors.	Medium – the additional effect of the proposed development 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 rest of the route being largely unaffected.	Moderate adverse – Not Significant
Glenbarr Memorial	Medium – Glenbarr Memorial has regional status as tourism and recreational receptor.	High – the additional effect of the Proposed Development 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 rest of the view being largely unaffected.	Major adverse - Significant
Glenbarr Abbey	Medium – Glenbarr Abbey has regional status as tourism and recreational receptor.	Medium – the additional effect of the proposed development would be Substantial as there are several	Moderate – Not Significant

Receptor	Sensitivity of Receptor	Magnitude of Effect	Significance of Effect
		consented and existing wind farms in the surrounding. However, the PD alone is unlikely to incur a significant reduction in tourism or recreation due to the view being a minor attraction of this receptor in comparison to the other attractions (museum, Abbey).	

13.115 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 Socio-economic, Tourism and Recreation Receptors within the Study Area.

13.116 Chapter 11: Noise concluded that construction noise levels are below the guidelines considered acceptable at all receptors for all construction phases, and therefore no significant effects are anticipated. Chapter 11: Noise also concluded that predicted levels and measured background noise levels indicate that for dwellings neighbouring the site, wind turbine noise would meet the noise criteria established in accordance with ETSU-R-97 at all Noise Assessment Locations (NALs). This contributes to the conclusion that there will be no significant cumulative effects in relation to noise from the proposed development.

13.117 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

13.118 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. There are a number of significant, adverse Landscape and Visual effects that have been taken into account within this report. 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. Considering the Proposed Development together with existing wind farms nearby, it is considered that the cumulative economic impact would have a minor and not significant beneficial effect.

Summary

13.119 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			
Argyll and Bute Council Area	Medium	Low beneficial	Minor beneficial – Not Significant
Economy			
Argyll and Bute Council Area	Medium	Low beneficial	Minor beneficial – Not Significant
Tourism			
Study Area (10km)	Medium	Medium adverse	Moderate adverse – Not Significant
Recreation			
Study Area (10km)	Medium	Medium adverse	Moderate adverse – Not Significant

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Allt Domhain Wind Farm

Environmental Impact Assessment Report Volume 1 Chapter 14: Other Issues

June 2025

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Table 14.1: Consultation Responses

14 OTHER ISSUES

Introduction

- 14.1 This chapter considers potential effects and features which have been scoped out of full assessment but raise pertinent points for the proposed development or link to other areas of assessment contained within this Volume.
- 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, including consultation and potential impacts upon civilian and military airspace and operations;
 - 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
 - Shadow flicker, to demonstrate that significant effects on residential receptors are not likely to occur, or where they might, that mitigation is possible.
- 14.3 The chapter is supported by a number of Technical Appendices (as set out within Volume 4: Technical Appendices), comprising:
- Technical Appendix 14.1: Aviation Lighting Report; and
 - Technical Appendix 14.2: Carbon Calculator.
- 14.4 Other relevant assessments are set out in Volume 1: Written Statement and include:
- Chapter 6: Landscape and Visual;
 - Chapter 7: Ecology; and
 - Chapter 9: Geology, Hydrology and Hydrogeology.

Legislation, Policy and Guidance

- 14.5 Chapter 5 of the EIA Report sets out the renewable energy and planning policy framework that is relevant to the EIA process and the proposed development. The policies set out include those from the Argyll and Bute Local Development Plan 2 (LDP2), relevant aspects of National Planning Framework 4 (NPF4), 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.
- Argyll and Bute Local Development Plan 2 (2024);

- The National Planning Framework 4 (2023);
- Scottish Government Onshore Wind: Policy Statement (2022);
- 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;
- Update of UK Shadow Flicker Evidence Base (DECC) (March 2011); 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 likely 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 in June 2021.
- 14.9 Consultation relevant to Aviation and the Aviation Lighting assessment were undertaken with Defence Infrastructure Organisation, Edinburgh Airport, Glasgow Airport, Glasgow Prestwick Airport, Highlands and Island Airport, and NATS Safeguarding 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 14.1.

Table 14.1: Consultation Responses

Consultee	Date Received	Consultation Response(s)	How and where is this addressed?
Aviation and Aviation Lighting			
Defence Infrastructure Organisation	18 th March 2021	Within Low Flying Area 14 – MOD requires a condition requiring that the development is fitted with aviation safety lighting and sufficient data is submitted to ensure structures can be accurately chartered. As a minimum, MOD require the development is fitted with MOD accredited aviation safety lighting in accordance with ANO 2016.	Noted – this is a standard and acceptable condition that would result in no discernible issues.
Edinburgh Airport	19 th March 2021	The wind farm is outside jurisdiction.	No further action required.
Glasgow Airport	26 th March 2021	The site is located outside of the obstacle limitation surfaces and radar consultation zone for	No further action required.

Consultee	Date Received	Consultation Response(s)	How and where is this addressed?
		Glasgow Airport, and is within the Instrument Flight Procedure consultation area. The position of Glasgow Airport will only be provided on a full planning application.	
Glasgow Prestwick Airport	12 th April 2021	Preliminary Line of Sight Analysis suggests all turbines will be terrain shielded and therefore GPA would be unlikely to object to the proposal.	No further action required.
Highlands and Islands Airport	23 rd April 2021	HIAL will require an IFP Assessment to determine impact upon Campbeltown Airport and Islay Airport.	The Applicant has held subsequent discussions with HIAL and procured an IFP Assessment. The Applicant was informed that there are severe delays within the aviation sector given there are a lack of Approved Procedure Design Organisations, and turnaround for such an assessment may be 9 to 12 months. Accordingly, the Applicant awaits the IFP assessment and this will be provided to HIAL, the ECU and the Council in Q4 2025. Anecdotally it is understood there are no issues, however this requires to be formalised.
NATS Safeguarding	11 th March 2021	NATS have no safeguarding objection to the proposal.	No further action required.

Summary of Approach to Aviation Lighting

- 14.10 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) as well as HIAL.
- 14.11 In correspondence on the 31st March 2025, the CAA approved an obstacle lighting plan for the proposed development, the design of which is summarised below and detailed in full in Technical Appendix 14.1.
- 14.12 The site is located in MoD Low Flying Area (LFA) 14, known also as Night Allocated Region 2B during night-time flying exercises and, as such, has been assessed for Night Vision Device (NVD) compatible and Infra-Red (IR) lighting in accordance with MoD obstruction lighting specifications.
- 14.13 To fulfil all MoD requirements, all nine turbines will be fitted with Infra-Red lights (at hub height) and four turbines will be fitted with ANO compliant medium intensity visible red

lights. The infra-red lights are invisible to the naked eye and do not have any impact of the surrounding environment.

- 14.14 Four of the proposed nine turbines will be fitted with ANO visible red aviation lights to fulfil the CAA's requirements, which state that turbines T1, T2, T5 and T8 must be lit with medium intensity steady red (2000 candela) lights. The CAA also state a second 2000 candela light should be fitted on the nacelles of the above turbines to act as alternates in the event of a failure of the main light (although both lights are never lit concurrently).
- 14.15 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.
- 14.16 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.
- 14.17 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. This means that maximum brightness is only required for approximately 5% of the time.

Summary of Carbon Calculator

- 14.18 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 affected peatland. The Carbon Calculator also provides an estimate of the carbon payback time for the proposed development.
- 14.19 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.
- 14.20 The results of the Carbon Calculator for the proposed development show that it is estimated to produce annual carbon savings in the region of 136,726 tonnes of CO₂e per year, and lifetime savings of over 4.7 million tonnes of CO₂e. These savings come about through the displacement of grid electricity, based on the current average grid mix.
- 14.21 The estimated payback time (against grid mix) of the proposed development, using the Scottish Government's Carbon Calculator, is estimated at 1.3 years, with a minimum/maximum range of 0.4 to 1.6 years.

Summary of Shadow Flicker Effects

- 14.22 There is no standard guidance for assessing shadow flicker in Scotland and therefore the industry along with planning and environmental health professionals in local authorities have, over many years, gathered an understanding of the parameters that are required in order to determine whether or not shadow flicker would be acceptable.
- 14.23 The Scottish Government's Onshore Wind Turbines: Planning Advice (2014)⁽²⁾ recommends that a separation distance of 10 times the rotor diameter between turbines and residential properties will mean that shadow flicker should not be a problem. 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.
- 14.24 The turbines used within this EIA Report have a rotor diameter of 162m, meaning that, if there are no residential properties within 1.62km of any turbine, shadow flicker should not be an issue. The guidance further specifies that shadow flicker is only a consideration through 130 degrees either side of geographic north.
- 14.25 An assessment of the area surrounding the proposed development using GIS mapping software combined with both aerial imagery and Ordnance Survey mapping shows that there are no properties within a 1.62km buffer of the proposed turbines, as demonstrated on Diagram 14.1.

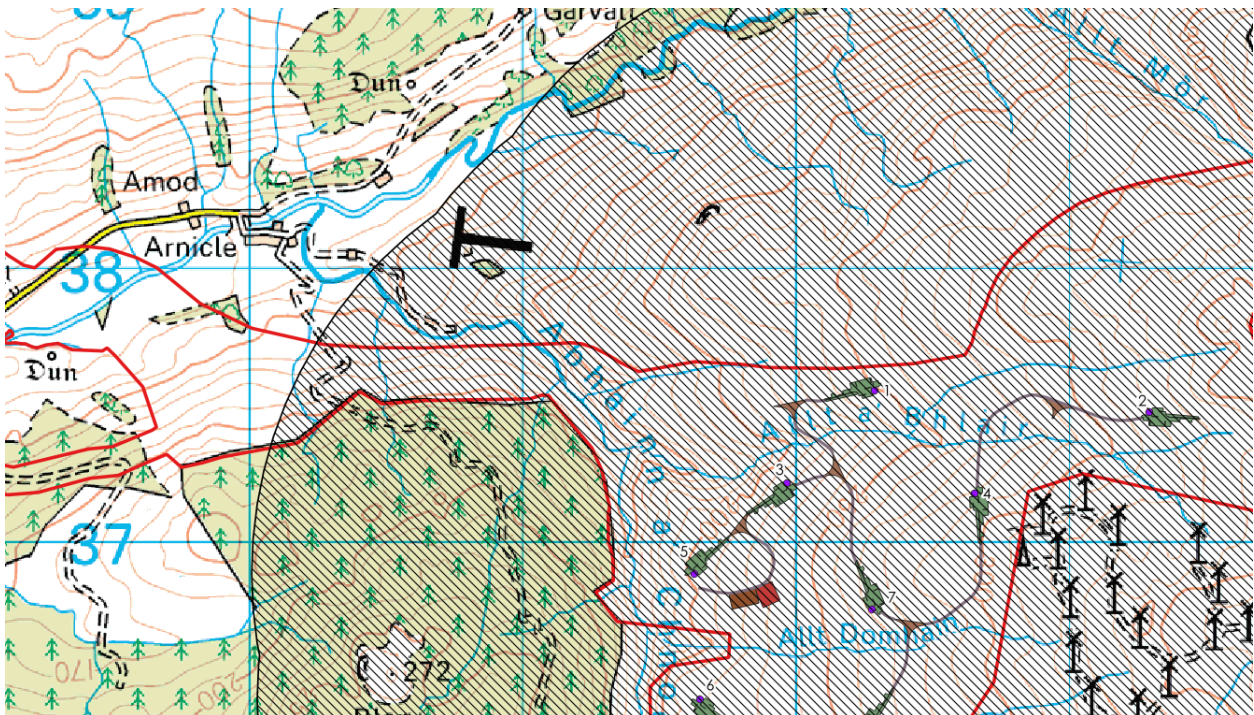


Diagram 14.1: 1.62km buffer around all turbines

- 14.26 Accordingly, there are no predicted shadow flicker effects. However, the Applicant is content to agree to a shadow flicker condition as part of any potential consent, which would provide a protocol for mitigating any shadow flicker effects should they be found to occur.

- 14.27 Mitigation measures could include provision of blinds, curtains or vegetation as deemed appropriate.

Matters Scoped Out

- 14.28 Air Quality and Ice Throw were proposed to be scoped out of any assessment during the Scoping Consultation and this approach was subsequently approved by the ECU. The following paragraphs will briefly explain why this was the case.

Air Quality

- 14.29 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.
- 14.30 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

- 14.31 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.
- 14.32 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.*"
- 14.33 As an added precaution, warning signage may be placed around the site to make the public aware of any risks.

Summary

- 14.34 The topics of Aviation, Aviation Lighting, the Carbon Calculator, and shadow flicker have been discussed in this chapter along with associated mitigation where required. These issues were scoped out of the formal EIA assessment process and this approach was accepted by the ECU at the Scoping stage. This chapter has therefore provided a summary of results, relevant information, and viable solutions agreed with consultees where necessary.

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Allt Domhain Wind Farm

Environmental Impact Assessment Report Volume 1 Chapter 15: Schedule of Mitigation

June 2025

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Table 15.1: Schedule of Mitigation

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 14.1: Schedule of Mitigation

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
<i>Chapter 6: Landscape and Visual</i>		
Landscape-specific mitigation during construction	A future outline Construction Environmental Management Plan (CEMP) would include 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).	Construction
	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.	
	A Site Restoration Plan will be submitted for approval by the Council 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.	
Landscape mitigation post-construction	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.	Post-construction
<i>Chapter 7: Ecology</i>		
Timing of Works	Works within the Barr Water or Abhainn a' Chnocain should not be undertaken between mid-October and June, inclusive, to avoid the sensitive spawning and emergence periods for salmonids and brook lamprey	Construction
Fish	Baseline, during-construction and post-construction fish population surveys will be conducted to ensure an up-to-date baseline as well as capture design iterations, and then to monitor fish populations during and after construction of the proposed development	Pre, during and post-construction
	A Water Quality Monitoring Plan (WQMP) will be produced, which will detail the requirements of monthly pre, during and post-construction water quality monitoring. This monitoring procedure will be followed to reduce the risk of an impact to habitats	
Bats	After an Access Track Option is identified, further investigation of potential roosts (trees, structures, buildings) identified within 30m in the Technical Appendix 7.2: Bat Survey Report, will be required further investigated to determine presence/absence of bat roosts	Pre-construction
	Feathering should be applied to pitch the blades out of the wind to below 2 rotations per minute while idling.	During operation

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
	Operational monitoring/carcass searches, completed monthly between May and September, are also proposed. The findings of these carcass searches may influence the operational regime of the proposed development.	During operation
Ecological Clerk of Works	A Clerk of Works with ecological training would be required to oversee general construction works in line with the CEMP and HMP. Responsibilities would include pre-construction surveys and advice on mitigation should it require to change.	During construction
Protected Species	Species Protection Plans (SPPs) should be delivered for bats, otters and freshwater fish. These plans will be prepared as a supporting document to the detailed CEMP to protect protected species and will include precautionary mitigation and good practice procedures	During construction
	Night-time working near watercourses (i.e. defined here as between one before sunset to one hour after sunrise) should be avoided. As such, construction activities should be undertaken during daylight hours in order to avoid the crepuscular (twilight) activity periods of otters and bats, and the nocturnal activity periods of badgers. However, if this is not possible and twilight works are necessary then any artificial lighting must be directed specifically onto the works area for the duration of the active works only.	During construction
	A 20mph speed restriction will be imposed throughout the Site to reduce the likelihood of death of mobile species such as reptiles, otter and badger due to increased Site traffic during the construction phase.	During construction
HMP	A full Habitat Management Plan requires to be prepared drawing upon further survey, detailed construction information from the appointed contractor, and the outline provisions contained within Technical Appendix 7.6. Outline provisions include restoration of degraded peatland	Pre-construction, during construction and post-construction.
Peatland habitats	A Peat Management Plan (PMP) (Technical Appendix 9.2) within the CEMP will outline procedures for the careful excavation, handling, storage, and reinstatement of peat during construction. It will assess peat depth and quality, identify strategies to mitigate disturbance, and include protocols for monitoring peat storages. The plan will also provide guidelines for effective reinstatement of peat, as well as training for personnel on best practices.	During construction
Chapter 8: Ornithology		
ECoW	To ensure that mitigation measures are reactive to changing conditions on the Site and compliance with legislation protecting breeding birds, the BPP would be overseen by a suitably experienced and licensed Ecological Clerk of Works (ECoW), who would attend the Site regularly to make or oversee observations of birds present in and around areas where works are planned, and identify any potential constraints to works and/or reactive mitigation needs.	During construction

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
Breeding birds Protection Plan	A Breeding Bird Protection Plan should be produced to ensure that nests, eggs and chicks are protected. This should be agreed with NatureScot and other relevant stakeholders. Measures to include • Timing of works • Pre-construction surveys for breeding crossbill • Pre-construction surveys for lekking black grouse • Pre-construction surveys for other breeding birds • Toolbox talks • Protection of nesting birds • Black grouse disturbance minimisation	Pre-construction
<i>Chapter 9: Geology, Hydrology and Hydrogeology</i>		
Embedded Mitigation	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
	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 Investigation	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
	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 works	The appointed Contractor will undertake pre-construction baseline water quality sampling and analysis of the principal surface water receptors (likely to be the Barr Water and the Abhainn a' Chnocain watercourse). The Contractor will implement a programme of monthly monitoring and analysis of the water quality of these watercourses / features during the construction period to	During construction

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
	ensure that they are not being impacted by the construction works. The full scope of monitoring will be detailed within the CEMP or controlled by separate condition.	
	Any peat excavated will be re-used on site as set out in the Outline Peat Management Plan (Technical Appendix 9.2).	
	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.	
	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.	
	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.	
	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.	
	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.	
	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.	
	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	

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
	or at compounds. Drainage from washout facilities will be collected and treated or removed to an appropriate treatment point / licensed disposal site.	
	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 30 m of watercourses and water bodies.	
	Where topography dictates that working platforms are needed, these will be formed to ensure that surface water drains away from watercourses.	
	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.	
Potential bridge construction	If the northern bypass access route is taken forward a bridge structure across the Barr Water will be required. At this stage a single span bridge is proposed to be constructed, which will avoid the requirement for working directly in the water channel. Construction works for the bridge foundations will be undertaken at positions away from the banking edge to minimise any impact to its integrity and outwith the extent of any flood zones. This will allow uninterrupted water flow in the river and mitigate against an increased risk of flooding.	
	Water crossing designs will follow best practice to prevent impact on the integrity of the banking of watercourses and mitigate against increased downstream flood risk. Detailed design will be included within a Construction Method Statement to be agreed with Argyll and Bute Council and SEPA and detailed watercourse crossing designs will be regulated under the CAR licensing regime.	
CEMP	With specific reference to the SEPA 'Guidelines for Water Pollution Prevention from Civil Engineering Contracts' and '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 felling, earthworks and construction; • Management of the pollution control system, including dewatering of excavations (if required) away from watercourses; • Contingency planning and emergency procedures; and	Pre-construction

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
	On-going monitoring of construction procedures to ensure management of risk is maintained.	
Earth Movement	All earthmoving works or similar operations will be carried out in accordance with BSI Code of Practice for Earth Works BS6031:1981.	During construction
Untreated foul drainage	Welfare facilities will either connect directly to self-contained storage tanks or to a septic tank, subject to approval from SEPA. 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
Drainage Strategy	Prior to construction, a detailed Drainage Strategy (DS) will be developed and agreed with SEPA and Argyll and Bute 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
Chapter 10: Cultural Heritage		
Direct effects (within the site)	Mitigation of adverse direct effects would be provided by the agreement of a Written Scheme of Investigation (WSI) with the West of Scotland Archaeology Service (WoSAS) Archaeologist. This scheme would allow for the identification and recording of archaeological features within the site boundary which would otherwise be affected by the proposed scheme	Pre-construction
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
Noise and CEMP	As part of a Construction Environmental Management Plan (CEMP) a Construction Noise Management Plan 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: Keep local residents informed of the proposed working schedule, where appropriate, including the times and duration of any abnormally noisy activity that may cause concern;	Pre-construction / during construction

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
	• Ensure that any extraordinary site work continuing throughout 24 hours of a day (for example, crane operations lifting components onto the tower) would be programmed, when appropriate, so that haulage vehicles would not arrive at or leave the site between 19:00 and 07:00, with the exception of abnormal loads that would be scheduled to avoid significant traffic flows; • Ensure all vehicles and mechanical plant would be fitted with effective exhaust silencers and be subject to programmed maintenance; • Select inherently quiet plant where appropriate - all major compressors would be 'sound reduced' models fitted with properly lined and sealed acoustic covers, which would be kept closed whenever the machines are in use; • Ensure all ancillary pneumatic percussive tools would be fitted with mufflers or silencers of the type recommended by the manufacturers; • Instruct that machines would be shut down between work periods or throttled down to a minimum; • Regularly maintain all equipment used on site, including maintenance related to noise emissions; • Vehicles would be loaded carefully to ensure minimal drop heights so as to minimise noise during this operation; and • Ensure all ancillary plant such as generators and pumps would be positioned so as to cause minimum noise disturbance and if necessary, temporary acoustic screens or enclosures should be provided.	
Operation	The exact make and model of wind turbine to be used at the proposed development would be the result of a future tendering process. Achievement of the noise limits determined by this assessment would be a key determining factor in the final choice of wind turbines for the Site. The assessment shows a exceedance of the derived noise limits for a limited range of wind speeds and wind directions at NALs 1 to 3 during the daytime period (should they be considered not financially involved) and as a result, the assessment presented assumes a targeted use of mode management for a limited range of wind speeds and directions for daytime periods to demonstrate that the noise limits can be adhered to. Depending on the final turbine selected for the Site, blade type and confirmation of final warranted levels from the chosen manufacturer, mode management may or may not be required. It is anticipated that noise limits would be secured by an appropriately worded planning condition.	Pre-construction (tendering) and Operation
Chapter 12: Transport and Access		

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
Construction Traffic Management Plan (CTMP)	The CTMP will identify measures to reduce the number of construction vehicles as well as identifying measures to mitigate the impact of vehicles. The CTMP will identify the programme of works, the agreed routes to Site and details of a Site Liaison who would have responsibilities for managing traffic and transport impacts and effects. A community liaison officer will be appointed to facilitate the communication of information with local residents and members of the public. The CTMP will also identify measures to reduce and manage construction staff travel by private car, particularly single occupancy trips. The CTMP would include the following measures as a minimum: • Immediately upon commencement, all deliveries, operatives and visitors to the Site will report to the security gate. This will be communicated to all early works contractors at their pre-start meeting. • The main contractor will develop a logistics plan highlighting the access point for the project, loading bay, pedestrian / vehicular segregation, welfare, storage, security and material handling that would be enforced following full Site establishment. • Approved haul routes will be identified to the Site and protocols put in place to ensure that HGVs adhere to these routes and do not pass through areas to be avoided. • Specific measures as appropriate on the unclassified road to Site such as speed restrictions for all construction traffic with clear signage. • All contractors will be provided with a Site induction pack containing information on delivery routes and any restrictions on routes. • Construction HGV traffic will be restricted between the network peak hours and school run hours which are generally 08:00 – 09:00, 15:00 – 16:00 and 17:00 – 18:00 Monday to Friday, if necessary. • Temporary construction Site signage would be erected along the identified construction traffic routes to warn people of construction activities and associated construction vehicles. • A construction traffic speed limit (for example, 20mph) could be imposed along any route or section of route deemed necessary such as within Campbeltown and along the unclassified road to the Site access. • The construction material 'lay down' areas will allow for a staggered delivery schedule throughout the day, avoiding peak and unsociable hours (i.e. before 06:00 and after 22:00). • An integral part of the progress meetings held with all trade contractors is the delivery schedule pro-forma. All contractors will be required to give details of proposed timing of material deliveries to the Site. At this stage they would be given a specific area for delivery.	Pre-construction / During construction

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
	• The CTMP and compliance monitoring therein will be included within all trade contractor tender enquiries to ensure early understanding and acceptance/compliance with the rules that would be enforced on this project. • Under no circumstances will HGVs be allowed to lay-up in surrounding roads. All personnel in the team will be in contact with each other and with Site management, who in turn will have mobile and telephone contact with the subcontractors. • Roads will be maintained in a clean and safe condition. • A wheel washing facility would be installed on-site during the construction period in order to reduce mud and debris being deposited onto the local road network.	
Street Furniture	Technical Appendix 12.1 identifies key points and issues associated with the route that require street furniture removal and temporary paving to accommodate the predicted loads. All mitigation works can be designed to be temporary in nature to enable restoration to their original condition (if required by Argyll and Bute Council).	Pre-construction
Passing places	Should the option to access the proposed development via Barr Glen Road (C20) be taken forward, whether using the road in its entirety or only a section of it, there will be a requirement to upgrade sections of the road to accommodate AIL traffic associated with the wind turbine components. 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 ABC, 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 Barr Glen Road (C20) and the mitigation works / traffic management required to construct it can be secured by a suitably worded planning condition with the Council	Pre-construction
Road condition survey	It is anticipated that the Council will require an agreement to cover the cost of abnormal wear and tear on Barr Glen Road (C20) and TS may require similar on the A83 (T) in the vicinity of Glenbarr. This would be dependent on which access option is progressed. 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 Council and Transport Scotland. Any damage caused by traffic	Pre-construction

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
	associated with the proposed development, during the construction period that would be hazardous to public traffic, would be repaired immediately. 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. There would be a regular road edge review. 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	An AIL TMP would be prepared prior to construction by way of suitably worded condition. This would 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. • Details of the policing of any convoys	Pre-construction
Staff Travel Plan	A staff travel plan would be provided to manage the arrival and departure of staff working on the site.	Pre-construction
Outdoor Access Management Plan	An Outdoor Access Management Plan will be prepared to ensure pedestrian and equestrian access is still available as required.	Pre-construction
Chapter 13: Socio-Economics		
	None required	
Chapter 14: Other Issues		

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
Shadow Flicker	There is no anticipated significant shadow flicker that would arise from the proposed development. 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 Argyll and Bute Council post-consent. Mitigation measures could include provision of blinds, curtains or vegetation as deemed appropriate.	

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