

BARACHANDER WIND FARM EIA SCOPING REPORT

Request for Scoping Opinion under The Electricity Works
(Environmental Impact Assessment) (Scotland) Regulations 2017

NI2551
V04
JULY 2023

Document status					
Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
01	Internal Review	Multiple	PMK	PMK	14.06.23
02	Internal Review	Multiple	PMK	PMK	21.06.23
03	Client Review	Multiple	PMK	PMK	26.06.23
04	For Scoping	Multiple	PMK	PMK	03.07.23

Approval for issue		
Paul McKernan		7 July 2023

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GLOSSARY

Term	Definition
BESS	Battery Energy Storage System
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
ECU	Energy Consents Unit
MW	Megawatt
AOD	Above ordnance datum
WEEE	Waste Electrical and Electronic Equipment
NPF	National Planning Framework
LDP	Local Development Plan
SPP	Scottish Planning Policy
OWPS	Onshore Wind Policy Statement
GW	Gigawatt
NTS	Non-Technical Summary
CoCP	Code of Construction Practice
WLATHR	West Loch Awe Timber Haulage Route
OCEMP	Outline Construction Environmental Management Plan
HGV	Heavy Goods Vehicle
CEMP	Construction Environment Management Plan
OCTMP	Outline Construction Traffic Management Plan
SEPA	Scottish Environmental Protection Agency
CDM	Construction, Design and Management
ALC	Agricultural Land Classification
GPP	Guidance for Pollution Prevention
PPG	Pollution Prevention Guidance
EMI	Electromagnetic Interference
LVIA	Landscape and Visual Impact Assessment
ZTV	Zone of Theoretical Visibility
SSSI	Site of Special Scientific Interest
LCT	Landscape character type
NSA	National Scenic Areas
LLA	Local Landscape Areas
DPEA	Directorate for Planning and Environmental Appeals
GDL	Gardens and Designated Landscapes
HES	Historic Environment Scotland
GLVIA3	Guidelines for Landscape and Visual Impact Assessment, Third Edition
CIEEM	Chartered Institute of Ecology and Environmental Management
SAC	Special Area of Conservation
SNH	Scottish Natural Heritage
SPA	Special Protection Area

AWI	Ancient Woodland Inventory
FWPM	Freshwater Pearl Mussel
LNCS	Local Nature Conservation Sites
NVC	National Vegetation Classification
EcIA	Ecological Impact Assessment
IEF	Important Ecology Features
NHFZ	Natural Heritage Future Zone
RSPB	Royal Society for the Protection of Birds
GB	Great Britain
SNH	Scottish Natural Heritage
ARSG	Argyll Raptor Study Group
WCA	Wildlife and Countryside Act
IOF	Important Ornithological Feature
NCI	Nature Conservation Importance
LLFA	Lead Local Flood Authority
OS	Ordnance Survey
WFD	Water Framework Directive
DMRB	Design Manual for Roads and Bridges
PLHRA	Peat Landscape Hazard Risk Assessment
DTM	Digital Terrain Mapping
PMP	Peat Management Plan
NSR	Noise Sensitive Receptors
BS	British Standard
IOA	Institute of Acoustics
EHO	Environmental Health Officer
LGV	Light Goods Vehicles
AIL	Abnormal Indivisible Loads
AADT	Annual Average Daily Traffic
AVRA	Abnormal Vehicle Route Assessment
IEMA	Institute of Environmental Management and Assessment
WoSAS	West of Scotland Archaeology Service
HES	Historic Environment Scotland
IGDL	Inventory Garden and Designated Landscape
RCAHMS	Royal Commission on the Ancient and Historic Monuments of Scotland
NERL	National Air Traffic Services En Route Ltd
MOD	Ministry of Defence
NATS	National Air Traffic Services
CAA	Civil Aviation Authority
UHF	Ultra High Frequency
JRC	Joint Radio Company
GVA	Gross Value Added

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1 INTRODUCTION

GreenPower International ("the Applicant") intends to submit an application for consent under Section 36 of the Electricity Act 1989 for the construction, operation and decommissioning of a wind farm and associated Battery Energy Storage System (BESS) facility with an installed capacity greater than 50MW but less than 100MW (the Proposed Development). The site is located within the Argyll and Bute Council area, west of the B845 road between the villages of Taynuilt (c.4.3km north) and Kilchrenan (c.1.5km south).

As a "Generating Station" the Proposed Development falls under the terms of Schedule 2 of The Electricity Works (Environmental Impact Assessment (Scotland) Regulations 2017 (the EIA Regulations). In this instance the Applicant has not sought a Screening Opinion from the Scottish Ministers as to whether the Proposed Development is one to which Environmental Impact Assessment (EIA) applies.

Rather, it is the Applicant's intention to voluntarily submit an EIA Report (EIAR) in support of the emerging application. This decision has been taken based on similar project experience and the likely planning authority position taken in respect of same.

1.1 Purpose of this Document

Based on the acceptance that the emerging project constitutes EIA development, this document comprises a Scoping Report prepared by RPS (the Agent) and seeks formal feedback on the matters to be contained within the EIAR which will accompany the application for consent to the Scottish Government Energy Consents Unit (ECU).

Scoping forms a key stage in the EIA process, providing a framework via which to:

- Identify the likely significant environmental effects arising from the Proposed Development; and
- Consequently distinguish the priority issues needing to be considered allowing identification of those to be included within the EIAR (Scoped In) and those which do not need to be included within the EIAR (Scoped out).

This Scoping Report has been informed by inter-alia:

- Desk top analysis and review of online databases;
- Site visit and baseline environmental survey;
- Existing National, Regional and Local policy and guidance pertaining to each of the topic matters contained herein;
- The EIA Regulations and EIA methods of good practice refined through experience; and
- Similar project experience.

1.2 The Applicant

GreenPower, formed in 2000, is a leading independent renewable energy developer and is well known in the local area for developing and operating Carraig Gheal Wind Farm. GreenPower is an independent Scottish renewable energy business.

The development team at GreenPower has substantial experience within the renewable energy sector and has the technical, management and financial skills to successfully bring complex projects to fruition. GreenPower has achieved consent for over 260MW of clean renewable energy and operates projects ranging from single wind turbine sites to utility scale commercial wind farms and has circa 600 MW of solar and wind projects in an active project pipeline, as well as a number of Hydrogen production projects in development including in Argyll and Bute.

Projects developed by GreenPower are now saving over 250,000 tonnes of carbon dioxide emissions every year and generate enough electricity for around 150,000 homes*. These projects attest to GreenPower's vision of a world powered by sustainable renewable energy.

2 SITE LOCATION & PROJECT DESCRIPTION

2.1 Site Location

The Proposed Development site occupies c.796 hectares of open moorland, recently planted as commercial forestry, west of the B845 road between the villages of Taynuilt (c.4.3km north) and Kilchrenan (c.1.5km south) within the Lorn district of the Argyll and Bute Council area. The site location is shown in Figure 2.1 below, and also included as “Figure 1” within Appendix A of this Report.

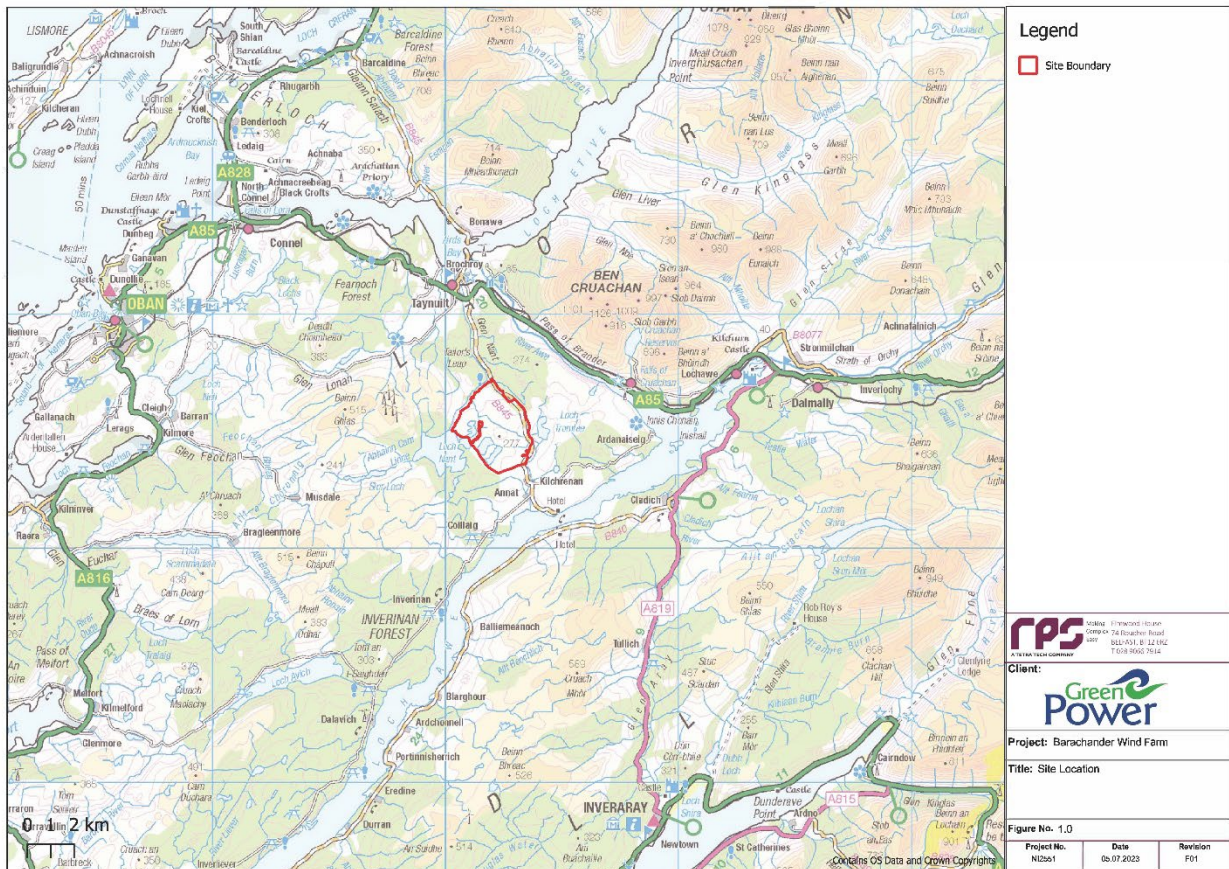


Figure 2.1: Site Location

The landform across the site is undulating, ranging from low points near to the northern and southern boundaries of c.150m AOD as high as 250 +m in the more central site portions. The high point of the site is Cruach Achadh na Craoibhe extending to 277m AOD towards the central part of the site.

Waterbodies are features of the host landscape including a number of Lochans within the site boundary to the southwest. Loch Nant hydropower reservoir is also adjoining the site to the southwest, whilst Loch Awe is located c.2.4km southeast of the site at its nearest point. Other features of the landscape are Glen Nant, a national forest immediately northeast of the site, as well as Ben Cruachan Mountain, rising to 1126m AOD, and consequently the highest point in Argyll and Bute. At its nearest, the peak of Ben Cruachan is situated c.6.2km northeast of the site.

Large electricity pylons bisect the site on a north/south trajectory along within its eastern boundary and to the west of the B845. An active quarry is also located along the road and to the immediate northeast of the site boundary. Other development comprises sporadic detached residences, accessing only and located along the B845, and are notably clustered towards the southeast beyond the site boundary. The existing Carraig Gheal and Beinn Ghlas wind farms are located west of the site.

A proportion of the site has recently been subject to a forest planting scheme comprising commercial softwood with some broadleaf areas.

2.2 Project Description

As stated, the Proposed Development will have a capacity of between 50MW and 100MW when constructed, comprised of:

- 11 wind turbine generators each with a capacity of c.6MW; and
- An associated BESS facility with a capacity of 10MW.

Coordinates of the proposed turbines are provided in Table 2.1 below.

Table 2.1: Wind Turbine Coordinates

Turbine No	X Coordinate	Y Coordinate
1	200998	725416
2	201322	725905
3	201576	726361
4	202344	726563
5	201970	726190
6	201910	725805
7	202597	726260
8	202799	725941
9	202193	725542
10	202662	725222
11	201745	725067

The proposed development is being designed to maximise the production of renewable energy generation, whilst balancing GreenPower's duty to respect the environment (Schedule 9 of the Electricity Act 1989). This is in the context of the Scottish Ministers having declared a climate emergency and ambitious new targets having been set in the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019, which amends the Climate Change (Scotland) Act 2009 setting targets to reduce Scotland's emissions of all greenhouse gases to net-zero by 2045 at the latest, with interim targets for reductions of at least:

- 56% by 2020;
- 75% by 2030; and
- 90% by 2040.

2.2.1 Main Project Elements

The main elements of the Proposed Development are as follows:

- 11 variable pitch (three bladed) wind turbines, each with a maximum blade tip height of up to 180 metres;
- Associated on-site Battery Energy Storage Scheme (BESS) facility;
- Permanent foundations supporting each wind turbine;
- Associated crane hardstanding at each turbine location;
- A series of new onsite access tracks with associated watercourse crossings;
- Borrow pits for the extraction of construction aggregates on site;
- A substation control building and compound;

- Underground cabling linking each turbine with the substation control building;
- A temporary construction compound and laydown area; and
- A permanent anemometer mast.

The anticipated access route to the site for the delivery of turbine components commences at Campbeltown Harbour and travels north along the A83 and A816 to Kilmartin before turning off onto the West Loch Awe Timber Haul Route (WLATHR) - approximately 6km north of Kilmartin - until it reaches the site.

The WLATHR is a proven route having been developed by GreenPower for turbine deliveries for the Carraig Gheal Wind Farm.

A range of wind turbine models may be suitable for the site, and the choice of candidate turbine model for this application will be dependent on a number of factors including wind analysis, the findings of the relevant technical and environmental assessments, and commercial availability of turbine models at the time of procurement.

To inform the process, this Scoping submission together with relevant layouts and wireframe imagery contained within same, is based on a Candidate Turbine as follows:

- Hub Height – 102.5m;
- Rotor Diameter – 155m; and
- Blade Tip Height – 180m.

Figure 2 contained in Appendix A of this Report provides a project layout prepared for the purposes of Scoping.

2.2.2 Construction

Typical construction activities, work methods and an outline construction programme will be set out in the EIAR. This will include details of programme phasing as well as construction traffic movements. It is anticipated that the construction programme will last 18-24 months.

2.2.3 Operation and Maintenance

Once operational, the development would be monitored remotely and on-site with a range of staff involved in routine maintenance, monitoring and habitat management activities. An operations building will provide a base for staff involved in managing faults or for routine maintenance.

2.2.4 Decommissioning

At the end of the project's operational life the wind farm and ancillary equipment will be fully decommissioned, dismantled and removed.

The operational lifespan of the project is 40 years.

All project elements will be removed from site and where possible will be recycled. Any waste generated during the decommissioning process will be removed and transported by a certified and licensed contractor. The site will be restored leaving no permanent visible trace. The turbines will be removed from the site in the same way they were transported to the site originally. Turbine will be de-commissioned in line with the requirements of the Waste Electrical and Electronic Equipment (WEEE) Regulations.

The cables interconnecting the wind farm to the electricity grid system will be de-energised and removed from the site, with any cable marker signs removed. All land will be reinstated in accordance with best practice.

A decommissioning programme will be agreed with the relevant authorities prior to commencement of the required works. It is expected that this requirement would be included as a Condition attached to any emerging consent for the Proposed Development.

An alternative option at the end of the operational life cycle may be the refurbishment or replacement of components. This action would be dependent upon many factors all of which would combine to inform viability at such future date.

Any such proposal would require a new development consent application at that time.

2.3 Planning Context

This planning context for Argyll and Bute is set by National Planning Framework (NPF) 4, the Adopted Local Development Plan and any associated Supplementary Guidance or material considerations.

2.3.1 Local Development Plan

The Council formally adopted the Argyll and Bute Local Development Plan on the 26th March 2015.

The Argyll and Bute Local Development Plan 2 (LDP2) is currently being prepared and when adopted will replace the extent 2015 Plan.

On 8th February 2023, the Chief Planner issued advice on Transitional Arrangements for NPF4, “..to support consistency in decision making ahead of new style LDP’s being in place.” The advice confirmed that upon adoption NPF4 would supersede NPF3 as well as Scottish Planning Policy (SPP) 2014.

Further, the advice confirms that, “For proposed LDPs prepared prior to the adoption and publication of NPF4, it may be that there are opportunities to reconcile identified inconsistencies with NPF4 through the examination process.”

It is confirmed that, “..in the event of any incompatibility between a provision of NPF and a provision of an LDP, whichever of them is the later in date is to prevail (Town and Country Planning (Scotland) Act 1997; section 24(3)).”

Against the backdrop of the above advice, on the 28th February 2023, the Scottish Government - Planning and Environmental Appeals Division (DPEA) – sought further information from relevant parties regarding unresolved matters raised relating to the content of proposed Policy 30 (the sustainable growth of renewables) and the associated diagram 7 (spatial framework for wind turbines).

The issued correspondence set out that, “The provisions of policy 30 and diagram 7 generally follow the advice set out in Scottish Planning Policy. However, that context has changed in light of NPF4. In particular, NPF4 no longer requires local development plans to provide a spatial framework for onshore wind development; and the list of assessment criteria provided in NPF4 Policy 11 (energy) has changed over that presented at paragraph 169 of Scottish Planning Policy.”

Further to submissions, the Report of Examination into LDP2 was published on 13th June 2023.

Among the recommendations emerging in respect of Policy 30 was removal of the spatial framework contained within Diagram 7. Policy 30 sets out that, “The Council will support renewable energy developments where these are consistent with the principles of sustainable development and it can be adequately demonstrated 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.”

Policy 30 goes on to set out a range of criteria against which applications for wind turbines will be assessed.

This EIA Scoping submission and the approach proposed herein is prepared cognisant of said criteria.

2.3.2 National Planning Framework 4

NPF4 represents the national spatial strategy for Scotland, setting out the spatial principles, regional priorities, national developments and national planning policy.

NPF4 is formulated in two parts with Annexes. Part 1 sets out the National Spatial Strategy for Scotland and also includes regional spatial priorities. Part 2 sets out the policies that are being created to guide both the

production of LDPs and also as an expression of national policy. Annexes include Annex B, “National Developments Statements of Need

2.3.2.1 Part 1 – A National Spatial Strategy

In terms of sustainable places, there is strong support for the deployment of further renewable energy, and it identifies this as part of the National Spatial Strategy. National developments include strategic renewable electricity generation and transmission infrastructure supporting “.. *electricity generation and associated grid infrastructure throughout Scotland, providing employment and opportunities for community benefit, helping to reduce emissions and improve security of supply.*”

2.3.2.2 Part 2 – National Planning Policy

In terms of the implementation of the cross-cutting outcome, policies 1 and 11 are likely to be of most direct relevance to renewable energy.

Policy 1 sets out that when considering all development proposals significant weight will be given to the global climate and nature crises.

Policy 11 supports renewable energy development. The key policy intent is very supportive to the further deployment of energy generation and storage and transmission to facilitate the delivery. Policy 11 advises that LDPs should seek to realise their area’s full potential for electricity and heat from renewable sources.

Policy 11 itself is divided into a number of component parts:

- (a) Supports all forms of renewable, low carbon and zero emissions technologies including wind farms;
- (b) –(e) Set out criteria to be considered in the assessment of renewable proposals. Part (e) sets out 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 emissions reduction targets.*”

The phraseology is important in that when applying to the balancing of the impacts on listed considerations, significant weight should be given to renewable energy and climate targets and contributions to same.

2.3.3 Further Material Considerations

2.3.3.1 Emissions Reductions Targets

A key to understanding the development of policy in relation to renewable energy is that it derives from the change in legislation which took place in 2019. The Scottish Parliament passed the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019. This legislation amended the Climate Change (Scotland) Act 2009 and introduced new climate change targets. First of all, the objective to achieve net zero was brought forward to 2045 and an interim target of a 75% reduction by 2030 was introduced. In addition, the amending legislation also provided annual targets to seek to ensure that the progress towards the targets is monitored. This required that the rate of deployment of renewables to almost double during the decade from 2020 to 2030. Notably the Intergovernmental Panel on Climate Change (IPPC) Report on Climate Change published on 20th March 2023 confirms that: “*In 2018, IPCC highlighted the unprecedented scale of the challenge required to keep warming to 1.5°C. Five years later, that challenge has become even greater due to a continued increase in greenhouse gas emissions. The pace and scale of what has been done so far, and current plans, are insufficient to tackle climate change.*”

A key provision for implementing the 2009 legislation is section 44. This requires public bodies (including Planning Authorities) in exercising functions to exercise them in a way that is best calculated to contribute to the delivery of targets and must also act in a way calculated to help deliver any programme laid before the Parliament under section 53. Section 53 introduces the concept of laying before the Scottish Parliament programmes in respect to climate change.

2.3.3.2 Climate Change Plan Update

The 2019 legislation was brought into force in March 2020. At that point, work was undertaken by the Scottish Government to update the Climate Change Plan which had previously been submitted to the Scottish Parliament. The updated Climate Change Plan was submitted to the Scottish Parliament in December 2020. It is a very lengthy document and seeks to cover all aspects of securing the green recovery and the path to net zero. The document is aimed at identifying strategic action to deliver on the climate change targets. It sets out an approach of how the Scottish Government is going to take forward action in a structured fashion through plans and policies.

NPF4 is specifically identified as one of the policy vehicles (see section 2.5 on page 69). Chapter 1 deals with electricity and on page 83 there is a diagram which sets out how the policy in relation to electricity will be taken forward. It identifies that there will need to be updated electricity generation policy and it also anticipates that NPF4 will be an important vehicle for delivery. This sets out the plan and policy development that is needed to implement the legally binding targets.

The Plan recognises that Scotland's natural capital is one of the country's greatest assets and is central to the future net zero economy, developing thriving rural economies based around woodland creation, peatland restoration and biodiversity as well as sustainable tourism, food and drink and energy. The emphasis is on balance and a coordinated approach (Part 2 of the Plan) acknowledging the need to '*align and deliver policies in a joined-up way*.' It stresses that 'preparation of the next generation of planning policy is a significant opportunity to work across the sectors of this Plan update to help deliver it, rapidly providing a coherent vision', a commitment to deliver the actions from the Offshore Wind Policy Statement and to update the Electricity Generation Policy Statement reflecting the contribution that renewable electricity generation is likely to have in achieving the Net Zero target in line with the Climate Change Committee recommendation to do so.

2.3.3.3 Revised Onshore Wind Policy Statement 2022

The revised Onshore Wind Policy Statement (OWPS) was published by the Scottish Government in December 2022. This forms a key part of the further formulation of electricity policy. The wider policy is being developed through the Draft Energy Strategy and Just Transition Plan which is currently at a consultation stage. The OWPS is an important document for the development of future onshore wind capacity within Scotland. In the Ministerial foreword, it is evident that the further deployment of onshore wind capacity is not only important to meeting climate change objectives, but also energy policy objectives of both security of supply and providing affordable energy supplies. The foreword identifies that both the climate change and the energy policy imperatives require urgent deployment and that in turn is reflected by the ambitions set out in the Policy Statement of at least 20GW of onshore wind being deployed by 2030, which more than doubles current capacity. It is important to note that this is a minimum.

Chapter 3 of the OWPS is entitled "*Environmental Considerations: Achieving Balance and Maximising Benefits*." Section 3.6 refers to landscape and visual amenity and National Planning Framework 4 – which was in draft form at that time. It identifies that, "*The only areas where wind energy is not supported are National Parks and National Scenic Areas. Outside of these areas, the criteria for assessing appraisals have been updated, including stronger weight being afforded to the contribution of the development to the climate emergency, as well as community benefits*."

In paragraph 3.6.1, it is acknowledged that the achievement of the 20GW onshore target by 2030 "*will require taller and more efficient turbines. This will change the landscape*" (emphasis within the policy).

One of the integral facets ingrained through all policy and material considerations is the continued use of the term balance and the need to apply this in decision making. Chapter 3 The OWPS again reinforces this requirement setting out in the introduction to Chapter 3 that, "*We must achieve a balance to ensure that we maximise both the environmental and economic benefits to Scotland*."

2.3.4 Planning History

A planning history check of the site and surrounding area has been undertaken utilising available databases comprising the Argyll and Bute Council facility as well on the ECU facility.

A summary of the local Council planning history is provided within the Table contained at Appendix B of this Scoping Report.

The Table illustrates that proposed residential or similar type applications (holiday chalet / extensions etc) are heavily concentrated along the B845 to the southeast and east of the site and adjacent to or clustering with existing residential properties. The B845 is the only immediately surrounding adopted road, and lands to the west of this road, comprising the site and its hinterland are inaccessible and isolated.

There is no planning history directly overlapping the site.

3 LEGISLATION & SCOPING CRITERIA

Within the Regulations “EIA development” – in the case of an application for Electricity Act Consent - is described as:

- Schedule 1 development – meaning EIA is mandatory for any projects listed therein; or
- Schedule 2 development likely to have significant effects on the environment by virtue of factors such as its nature, size or location.

As set out in Section 1 of this Scoping Report, wind farm developments as “Generating Stations” are covered by Schedule 2 of the Regulations. To reaffirm, the Applicant has taken the decision to voluntarily commit to an EIA process. This Scoping Report is submitted to help inform the EIAR which will be submitted in support of the Application.

3.1 Information Required

Regulation 4 sets out that, *“The environmental impact assessment must identify, describe and assess in an appropriate manner....the direct and indirect significant effects of the proposed development (including ...operational effects.) on the factors specified in paragraph (3) and the interaction between those factors.”*

Paragraph 3 referred to, sets out that those factors are:

- Population and human health;
- Biodiversity;
- Land, soil, water, air and climate; and
- Material assets, cultural heritage and the landscape.

Accordingly, as a minimum, the EIA process should consider the above mentioned factors unless agreed by the authorities through reasoned explanation that they can be “Scoped out” of the EIA process (Refer to Section 3.2 below).

Paragraph 4 also includes a requirement to consider, in so far as is relevant to the development, its vulnerability to major accidents and hazards.

Consideration of the above matters must be presented within the EIAR which in turn must be prepared in accordance with Regulation 5 of the Regulations to include (at least):

- A description of the development comprising information on the site, design and size;
- A description of the likely significant effects on the environment;
- A description of any measures undertaken to avoid, prevent, reduce or offset likely significant adverse impacts;
- A description of reasonable alternatives studied by the developer;
- A non-technical summary of the information; and
- Any other information specified in Schedule 4 of the Regulations relevant to the specific characteristics of the development.

Schedule 4 reiterates those considerations referred to within Regulation 4 and 5, confirming that any EIA process must also include consideration of the cumulative effects with other existing and/or approved developments.

Relevant guidance in respect of the EIA process places great emphasis on a proportionate approach. **Planning Advice Note 1/2013** stresses the importance of ensuring that EIAs are fit for purpose. The purpose of EIA is to ensure that the decision maker has all of the environmental information necessary to enable informed decision-making. *“Proportionality can best be achieved by seeking information from the planning authority and the Consultation Bodies on the scope of the assessment, paying attention to their views from the outset, and by focusing on the significant environmental effects of the proposed development.”*

Planning Circular 1/2017 in underlining the benefits of seeking a formal scoping opinion confirms that this process allows the developer to be clear about what the planning authority “*considers the significant effects of the development are likely to be and, therefore, the topics on which the EIA report should focus.*”

Environmental Impact Assessment: Environmental Impact Assessment Handbook - Scottish Natural Heritage, (V5 April 2018) also advises that “*EIA Reports should be compliant but proportional to the nature, scale and significance of effects; they should be rigorously edited, focused on key issues and should not contain so much detail that they distract readers from important environmental effects, or so lengthy and technical that they deter people from reading them.*”

3.2 EIA Scoping

Although not a mandatory process, Part 4 of the Regulations allows developers to request that the Scottish Ministers adopt a scoping opinion regarding a proposed development.

The main purpose of the scoping exercise is to identify potentially significant issues for detailed examination and those that can be ‘scoped out’ of future assessments. Scoping out is justified on the basis of any of the following:

- A topic is irrelevant, due to the nature of the works on the receiving environment;
- The proposed option results in negligible impacts and is located in an area that is not environmentally sensitive to the anticipated effects;
- Effects on a particular receptor are considered to be below the significance threshold; or
- Any design or mitigation measures proposed will avoid the particular environmental effect.

This EIA Scoping Report considers environmental topics having regards to:

- A brief assessment of the existing situation (baseline);
- The identification of potential effects and key issues which may be associated with both the construction and operation of the proposed development;
- An indication of any mitigation measures likely to be proposed; and
- An indication of the approach to be adopted towards a detailed assessment of potential effects (where appropriate).

This Scoping Report has been provided in line with Part 4, Regulation 12 of the Electricity Works EIA Regulations to include:

- A description of the location of the development, including a plan sufficient to identify the area in which the works are proposed to be sited; and
- A brief description of the nature and purpose of the development and of its likely significant effects on the environment.

It is acknowledged and accepted that the resultant EIAR must be based on the scoping opinion provided by the Scottish Ministers.

4 GENERAL APPROACH TO EIA

As set out in Section 2.2.1, a Candidate Turbine has been chosen to inform this Scoping Report.

Evolving technology may also mean that other project elements cannot be finalised in precise detail at the time of application submission. Where this is the case, the EIA will ensure that the likely significant effects of the proposal are rigorously and properly assessed by applying the design envelope approach¹ to set out parameters including the maximum – or where relevant minimum - extents of the proposal ensuring assessment of the likely worst-case effects.

This approach ensures any emerging consent provides a development window within which design innovations can occur without undermining the integrity of the EIA process.

ECU advice². sets out that where flexibility is sought through the application of the Design Envelope, the EIA Report should:

- Clearly identify the characteristics of the proposed development that are yet to be finalised in the description of the development - the description of the development in the EIA report must not be so wide that it is insufficiently complete to comply with requirements of the EIA Regulations;
- Include information relating to where flexibility is sought, taking into account the variations applicable to the proposed development;
- Explain the reasons as to why characteristics of the proposed development remain uncertain in order to justify the flexibility sought; and
- Ensure that the approach taken in the assessment is not overly complex, as this may impede the understanding of the assessment and the finding of likely significant effects - fewer options and variations make the EIA report easier to understand.

4.1 Structure of the EIA Report

The findings of the EIA, together with information and data collected during the assessment will be presented in the EIAR.

It is proposed that the EIAR will comprise 3 Volumes as follows:

- Volume 1 – Written Text;
- Volume 2 – Figures; and
- Volume 3 – Appendices.

Volume 1 will comprise an Introduction, Project Description and Scoping/Consultation review followed by specialist EIAR chapters. Please note, the inclusion of both Introduction and Project Description chapters, negates the need for duplication of such information within the remaining ES chapters. A Glossary of terms will be provided at the beginning of Volume 1 listing relevant technical terms, acronyms and abbreviations used throughout the Report.

Figures and Appendices contained in Volumes 2 and 3 respectively will correspond with the relevant Chapters to which they relate - i.e. figures relating to chapter 1.0 will be Figure 1.1, Figure 1.2 etc. Appendices will be Appendix 1.1, Appendix 1.2 etc.

¹ Also Referred to as the Rochdale Envelope

² Guidance for applicants on using the design envelope for applications under Section 36 of the Electricity Act 1989 – June 22

Additionally, a Non-Technical Summary (NTS) will be provided as a standalone document which comprises a summary of each of the chapter briefly presenting an overview of existing site conditions relevant to the suite of disciplines considered, as well as an assessment of the predicted environmental effects of the proposals. The NTS will be prepared by the responsible specialist consultants using non-technical language and terminology.

4.2 Chapter Structure

Chapters relating to each topic area will strive to adhere to the structure listed below:

- Introduction;
- Assessment Methodology;
- Existing Environment;
- Impact Assessment (including cumulative impacts);
- Mitigation Measures;
- Residual Impacts;
- Interactions.

Additionally:

- As appropriate, references contained within each chapter will be set out in the Harvard System of author/date/title/publisher; and
- Internet sourced material will be set out by author or company / date constructed / page title / web address).

4.2.1 Assessment Methodology

The methodology for undertaking the EIA process provides for a staged approach, which can be summarised as follows:

- Scoping / consultation exercise - to compile relevant background data and identify issues and constraints;
- Baseline surveys – including walk-over visits, detailed specialist surveys and discussions with relevant statutory and other consultees to determine the nature and extent of the existing environment;
- Identification of potential significant effects – predicting the likely significant environmental effects (direct, indirect, secondary and cumulative) of the proposed development during construction and operational phases as well as setting the scene for identifying appropriate mitigation for the development during construction and operational phases;
- Interactions of the foregoing and cumulative effects – predicting the likely significant effects of various environmental aspects in tandem from the proposed development and from the proposed development in tandem with other approved developments in the study area;
- Mitigation & Monitoring – description of mitigation proposals including those which have been incorporated into the project design as it evolves, including regular review and evaluation. To mitigate the identified significant environmental effects; where necessary, monitoring will be required during construction and operational phases to demonstrate effectiveness of mitigation measures included in the EIAR.
- Residual effects – consideration of the residual effects remaining after mitigation;
- Reporting – preparation of the EIAR Report, including Non-Technical Summary (NTS);

This approach will be applied to each of the assessments which combine to make up the EIAR.

4.2.2 Impact Assessment

The assessment of whether the proposed development is likely to have a significant impact on the environment has been undertaken through a variety of methods:

- Professional judgment and experience based on published guidance criteria;
- Assessment of both temporary and permanent effects (direct, indirect, secondary and residual);
- Assessment of interaction and cumulative effects;
- Assessment of duration and reversibility of these effects;
- Assessment against local, regional and national policy; and
- Consultation with statutory and non-statutory consultees.

Each topic chapter will take into account both the sensitivity of receptors affected and the magnitude of the likely impact in determining the significance of the effect.

4.2.2.1 Sensitivity of Receptors

Receptors are defined as the physical resource or user group that would be affected by a proposed development. The baseline studies will identify potential environmental receptors for each topic and will evaluate their sensitivity to the Proposed Development. The nature and type of receptors will vary depending upon the assessment as will their sensitivity.

Table 4.1 below sets out a typical set of descriptors that can be utilised within the EIA process to define the sensitivity of a receptor.

Table 4.1: Environmental Value (or Sensitivity) and Typical Descriptors

Value (Sensitivity)	Typical Descriptors
Very High	Very high importance and rarity, international scale and very limited potential for substitution
High	High importance and rarity, national scale, and limited potential for substitution.
Medium	High or medium importance and rarity, regional scale, limited potential for
Low	Low or medium importance and rarity, local scale.
Negligible	Very low importance and rarity, local scale.

4.2.2.2 Magnitude of Impact

Defining the magnitude of impact may take into account the following and other factors:

- Extent / Scale – for example the portion of a designation feature impacted by the proposal;
- Duration;
- Timing and frequency; and
- Permanence / Reversibility.

Magnitude of impact can be assessed as beneficial or adverse. Table 4.2 below sets out a typical set of descriptors that can be utilised within the EIA process to define the Magnitude of Impact.

Table 4.2: Magnitude of Impact and Typical Descriptors

Magnitude of Impact	Typical Criteria Descriptors
Major	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements (Adverse).
	Large scale or major improvement of resource quality; extensive restoration or enhancement; major Improvement of attribute quality (Beneficial).
Moderate	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements (Adverse).
	Benefit to, or addition of, key characteristics, features or elements; improvement of an attribute quality (Beneficial).
Minor	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements (Adverse).
	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some Beneficial impact on attribute or a reduced risk of negative impact occurring (Beneficial).
Negligible	Very minor loss or detrimental alteration to one or more characteristics, features or elements (Adverse).
	Very minor benefit to or positive addition of one or more characteristics, features or elements (Beneficial).
No Change	No loss or alteration of characteristics, features or elements; no observable impact in either direction.

4.2.2.3 Significance of Effects

Table 4.3 below sets out a typical set of descriptors that can be utilised within the EIA process to categorise the significance of effects.

Table 4.3: Descriptors of the Significance of Effect Categories

Category	Typical Descriptors
Very Large	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.
Large	These beneficial or adverse effects are considered to be very important, but are not likely to be material in the decision-making process.

Category	Typical Descriptors
Moderate	These beneficial or adverse effects may be important, but are not likely to be key decision-making factors. The cumulative effects of such factors may influence decision making if they lead to an increase in the overall adverse effect on a particular resource or receptor.
Slight	These beneficial or adverse effects may be raised as local factors. They are unlikely to be critical in the decision-making process, but are important in enhancing the subsequent design of the project.
Neutral	No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

A matrix can then be used to identify how the assessment of sensitivity and magnitude of impact combine to result in a predicted significance of effect – please refer to Table 4.4 below.

Generally assessments undertaken as part of the EIAR will adhere to this systematic approach.

Where they do not, this will be due to specific tailored approaches to assessment of significance that are required by professional institutions of which competent experts are members, and/or approaches that have been refined and agreed through previous experience.

In all instances, assessments comprising the EIAR will follow a structured layout and contain an assessment of significance that is clearly set out and rationalised in each topic chapter.

Each topic chapter will also:

- Provide an explanation of any assumptions and limitations that may have impacted predicted significance of effects;
- Assess cumulative impacts (refer to Section 4.2.3 below); and
- Propose mitigation measures (refer to Section 4.2.4 below).

Table 4.4: Significance of Effect Matrix

Sensitivity of Receptors	Magnitude of Impact (Degree of Change)				
	No Change	Negligible	Minor	Moderate	Major
Very High	Neutral	Slight	Moderate or Large	Large or Very Large	Very Large
High	Neutral	Slight	Slight or Moderate	Moderate or Large	Large or Very Large
Medium	Neutral	Neutral or Slight	Slight Moderate	Moderate	Moderate or Large
Low	Neutral	Neutral	Neutral or Slight	Slight	Slight or Moderate
Negligible	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight

As set out in Table 4.3, the significance of effects can be described as adverse or beneficial.

For some EIAR Chapters which are scientifically evidence based, the conclusions in terms of effect can be easily distinguished as either adverse or beneficial. For other Chapters, notably Landscape and Visual Impact Assessment, the assessment of effects is more subjective.

Balancing and distinguishing these effects is a crucial part of the overall assessment process and is generally left to the decision maker, informed by the EIAR, planning statement and any other ancillary information.

4.2.3 Cumulative Effects

Whilst Carraig Gheal (west) and Beinn Ghlas (northwest) wind farms are those nearest in vicinity to the site, the cumulative effects of the Proposed Development in conjunction with other proposed wind farms of 50 metres to blade tip or greater, within 45km of the site will be considered.

A provisional list of proposed wind farm developments to be considered in the cumulative assessment and their status is included in Table 4.5 below. A final list of wind farm developments relevant to the assessment of cumulative effects will be agreed nearer to final design to take account of any emerging information in the interim period.

Table 4.5: Provisional List of Cumulative Assessment Development

Site Name	Status	Tip Height	No of Turbines
A Chruach	Operational	129	21
A Chruach II	Consented	135	2
An Suidhe	Operational	80	23
Beinn Ghlas	Operational	55	14
Beinn Ghlas Repowering	Scoping Stage	180	18
Carraig Gheal	Operational	110 - 125	20
Clachan Flats	Operational	97	9
Cruach Mhor	Operational	71	35
Barran Caltum	Operational	54	2
Blarghour	Consented	136.5	17
Blarghour Variation	Application Stage	180	14
An Càrr Dubh	Application Stage	180	13
Musdale	Scoping	200	26
Creagh Dhubh	Consented	145	9
Allt Dearg	Operational	81	12
Srondoire	Operational	100-120	3
Strachur House	Consented	55	1

4.2.4 Mitigation Measures

The EIA Regulations require that where significant effects are identified 'a description of any features of the Proposed Development, or measures envisaged in order to avoid, prevent or reduce or, if possible, offset likely significant adverse effects on the environment' should be included in the EIA Report.

The development of mitigation measures is part of an iterative EIA process. Therefore, measures will be developed throughout the EIA process in response to the findings of initial assessments. The project that forms the subject of the section 36 application will include a range of measures designed to reduce or prevent significant adverse environmental effects arising, where practicable. In some cases, these measures may result in enhancement of environmental conditions. The assessment of effects will therefore take into account all measures that form part of the project and to which GreenPower are committed.

The topic chapters will therefore take into account all measures that form part of the Proposed Development, including:

- Measures included as part of the project design (sometimes referred to as primary or embedded mitigation);
- Measures to be adopted during construction to avoid and minimise environmental effects, such as pollution control measures. These measures would be implemented through the Code of Construction Practice (CoCP); and
- Measures required due to legislative requirements.

Where required, further mitigation measures will be identified within topic chapters. These are measures that could further prevent, reduce and, where possible, offset any residual adverse effects on the environment.

In some cases, monitoring measures may be appropriate, for example, to ensure that proposed planting becomes established. Where appropriate, monitoring measures will be set out.

5 PROPOSED SCOPE

5.1 Works Undertaken to Date

The Applicant as an owner and operator of the nearby Carraig Gheal Wind Farm have an intricate knowledge of the environmental baseline within the wider area surrounding the Barachander site.

To date, the focus of project work has been building upon existing knowledge and undertaking baseline environmental surveys at Barachander to ensure that the Scoping Report is appropriately informed to facilitate meaningful feedback and – ultimately – a robust EIA process.

The Scoping project layout and project proposals have been prepared to take account of inter-alia:

- Ornithology Surveys – 24 months of data;
- Peat Depth Survey;
- Phase 1 Ecology walkover and further targeted surveys - as recommended - including bats;
- Recommendations emerging from the suite of further environmental baseline surveys;
- Route access survey and swept path analysis;
- Technical design considerations including wind-speed and wake effect; and
- The recently planted commercial forestry across much of the site.

5.2 Topics Proposed as “Scoped Out”

Taking account of the above referenced knowledge and study findings, and based on experience of EIA processes, it is proposed that the following topics are not included in the EIAR.

5.2.1 Plans and Policies

The EIAR will provide an overview of relevant legislative and planning policy context within each topic chapter. The assessment will have regard to national and local policy documents, where relevant. However, it is not proposed to include a separate chapter on Planning Policy Context in the Report. Such a Chapter is not recommended or required by the EIA Regulations.

In practice the policy context is included in the planning statement and interspersed across all the chapters.

A separate Planning Statement will be submitted with the planning application and the environmental topic chapters within the EIAR will each set out the policy context relevant to that topic. The Planning Statement will draw on the findings of the EIAR and supporting technical reports in demonstrating compliance with prevailing planning policy requirements.

5.2.2 Material Assets

The EIA Regulations refer to 'material assets', which has a broad scope to include assets of human and/or natural origin, valued for amenity, socio-economic, or heritage reasons. Material assets are in practice considered across a range of topic areas within an EIA Report, including in particular the proposed cultural heritage and landscape chapters which examine assets including, core paths, viewpoints and points of general assembly including amenity areas and historic parks and gardens to name but a few.

Given the extent of the proposed EIAR (See Table 5.1) it is proposed that “Material Assets” will be appropriately assessed within the scope of the suggested Chapters and further that no standalone and separate consideration of material assets is necessary.

5.2.3 Air Quality

Potential impacts on air quality are only possible during the construction period (18-24 months) and are therefore temporary in nature. Surrounding sensitive receptors are few and located solely along the B845 between Taynuilt and Kilchrenan to the east of the site. The proposed haul route to the site will utilise the WLATHR which is an established haul road having been developed and used previously by GreenPower during the construction of the Carraig Gheal Wind Farm. The haul route enters the site at the south at a point c.600m west of the nearest sensitive receptor. At their nearest point turbines are also located c.900m west of the nearest sensitive receptors. Given the substantial separation distances between receptors and proposed works, the potential for air quality impacts arising from dust or airborne materials during construction is extremely unlikely.

The anticipated transport route prior to reaching the WLATHR utilises the A83 and A816 roads, both of which are major roads serving Argyll and Bute and designed to be well utilised by HGV traffic including that from Campbeltown Port. The increase in traffic levels on these roads associated with the construction process will be temporary and insignificant within the context of existing traffic levels. The associated impacts on air quality are again likely to be insignificant.

During operation the site will be accessed for routine maintenance predominantly in light vehicles. This will have no measurable impact on air quality.

In addition, during construction, best practice environmental protection measures will be applied by GreenPower in accordance with their own “best in class” procedures and processes. It is intended that the EIAR will include an Outline Construction Environmental Management Plan (OCEMP) as an Appendix to Chapter 2, which will provide a palette of protection measures to negate the potential for environmental impacts as a result of construction activities. The OCEMP will ultimately provide a framework to be adopted and worked up by the appointed contractor. It is likely that the requirement for a Final CEMP will be conditioned as part of any emerging consent for the project.

This is a standard and accepted approach in EIA processes.

5.2.4 Ice Throw

Turbines will include equipment capable of sensing the accumulation of ice on the blades. The turbines will be deactivated if an accumulation of ice is identified.

In addition, signs in accordance with current guidance (Scottish Renewables et al., 2019) warning staff and third parties of the risk would be included at the site entrance.

An assessment of the effects of ice throw is therefore proposed to be scoped out of the EIA process.

5.2.5 Waste

There will be no waste generated during the operation of the Wind Farm. Waste considerations are therefore confined to the construction phase of the project.

Details of the broad types of waste produced due to construction of the proposed development will be included within Chapter 2 (Project Description) of the EIAR. The OCEMP will include a draft waste management plan which will include a series of measures setting out how waste will be managed in accordance with a best practice approach and the waste hierarchy. The Plan will confirm an approach where material produced from excavated materials will be separated and stored in designated temporary stockpile areas on site, to be reused where possible as part of the construction process. The waste management plan will require to be finalised and submitted to the Planning Authority by the appointed contractor prior to construction.

The estimated waste types and volumes likely to be generated during the construction phase of the development will be identified and set out within a waste management plan prior to construction. The plan will also include a series of measures to manage waste in accordance with best practice and the waste hierarchy.

Toilet facilities during construction will be self-contained and all foul waste generated will be taken off-site and disposed of by a registered contractor to appropriately licensed facilities. Toilets will be placed in bunded areas to protect against leakage.

This is not a waste generating proposal and the approach set out is appropriate and established through practice, to facilitate assessment of waste impacts

It is respectfully proposed that a separate waste chapter is not considered necessary for inclusion in the EIA Report.

5.2.6 Human Health

In human health terms it is proposed that this is a benign development and risks are limited to those associated with:

- Traffic movements during construction only;
- Noise during construction and operation;
- Impacts from pollution during construction on public or private water supplies via hydrological paths originating at the site; or
- Potential fire risk.

It has been proposed to Scope Out issues associated with air quality and ice throw within Sections 5.2.3 and 5.2.4 of this Scoping Report, respectively, and therefore no additional consideration will be given to these matters within this section.

5.2.6.1 Traffic and Transport

Increases in traffic and transport generation will be solely during construction. During operation traffic generation will be negligible. Increased traffic levels will therefore be temporary. The impact of these on the highway network will be fully assessed within the proposed Traffic and Transport Chapter to be contained within the EIAR.

This Chapter will be supported by an Outline Construction Traffic Management Plan (OCTMP) which will provide a palette of measures to manage temporary traffic increases in a safe and controlled manner along the selected access route. The priority of the OCTMP will be to ensure safe vehicle access to and from the site with health and safety as well as the welfare of the general public at the forefront of the document. Measures contained within the OCTMP will be tailored to the specifics of the proposal but are likely to include those intended to:

- Inform residents along haul routes of traffic movements and construction phases;
- Avoid periods of the day or certain scheduled calendar events to mitigate the potential for transport impacts – before and after school times for example;
- Protect against damage to public roads;
- Ensure rigorous health and safety procedures;
- Confirm procedures for site vehicles along haul routes including traffic control measures limiting reversing and turning movements.

The contents of the OCTMP will be adopted, worked up and confirmed by the appointed contractor prior to construction. It is likely that the requirement for a Final CTMP will be conditioned as part of any emerging consent for the project.

This is a standard and accepted approach in EIA processes.

The impacts associated with on-site traffic during construction will be managed through the CEMP referred to previously in this Report. As stated the EIAR will include an OCEMP illustrating a palette of measures which will ensure any risk to health by on-site construction including traffic activities will be insignificant.

5.2.6.2 Noise

Potential impacts associated with noise generation during both construction and operation will be considered and assessed within a specific EIAR Chapter. Please refer to Section 6.9 below.

5.2.6.3 Hydrology & Water Quality

Potential impacts on hydrology and water quality will be considered and assessed within a specific EIAR Chapter. Please refer to Section 6.7 below. The potential for impacts on the hydrological baseline through pollution or infiltration are possible during construction activities on the site. During operation, site maintenance and management activities will be largely focussed on turbine operations and electrical system management. The potential for pollution incidents during operation is therefore negligible.

Project design is informed by constraints on the site including the presence of water bodies, watercourses and drains. Works proximate to watercourses or drains will be limited to occasional crossing points. The huge majority of proposed development works will be kept away from these features by significant separation distances which in itself will limit the potential for material run off into hydrological pathways.

Scottish Environmental Protection Agency (SEPA) Land Use Planning System, Guidance Note 4, provides planning guidance in respect of onshore wind farm development. Section 5 sets out that where groundwater abstractions are identified either:

- Appropriate buffers should be provided - 100m from roads, tracks and trenches or 250m from borrow pits and foundations; or
- A quantitative hydrogeological assessment must be undertaken to demonstrate that the risk to ground water abstractions are not significant.

Distances between the nearest turbine and receptor are c.900m. The Scoping Layout illustrates that internal access roads are marginally closer however remain substantially in excess of 250m. The land between the Proposed Development and the nearby receptors is also within the control of the Applicant, and no private water supplies are located here.

Setting aside the above, the presence of all known private water supplies within a 250m of the site boundary will be established and set out within the EIAR through consultation with the local authority with whom they must be authorised.

Additionally, the OCEMP submitted as an Appendix to the EIAR will set out how the potential impacts arising from construction activities will be appropriately mitigated and managed. This will include safeguards for potential run-off and sediment.

5.2.6.4 Fire Risk

Fire risk considerations at the Barachander facility focus mainly on the BESS element of the project. It is proposed that fire risk will be minimised by:

- Procuring components and using construction techniques which comply with all relevant legislation;
- Including automatic fire detection systems in the development design;
- Including automatic fire suppression systems in the development design;
- Including redundancy in the design to provide multiple layers of protection;
- Designing the Development to contain and restrict the spread of fire through the use of fire-resistant materials, and adequate separation between elements of the BESS;
- Undertaking consultation with the local fire service to ensure that recommendations and requirements are addressed to enable an adequate emergency response to a fire; and
- Working with the local fire service to develop their Tactical Response Plan in case of an incident.

The application will be supported by an Outline Fire Safety Management Plan contained within the OCEMP. This ensures that safety risks related to the entirety of the Proposed Development are understood, accounted for and mitigated as far as practicable, in agreement with relevant consultees, prior to construction commencing. The Outline Fire Safety Management Plan will be confirmed as part of the final CEMP to be submitted and agreed with the local planning authority prior to construction/.

5.2.6.5 Health & Safety

The developer's main concern during construction and operation is the Health and Safety of the staff, the general public, the landowners and anyone who with the potential to come into contact with any part of the construction phase and ongoing maintenance at the plant.

Following the grant of consent and prior to the commencement of any construction works on site, the developer will appoint a suitably qualified and experienced CDM (Construction, Design and Management) coordinator to assist in the implementation of detailed site management procedures covering traffic management, electrical safety (including suitability of electrical connectors) manual construction safety, trades person working procedure conflicts, access and egress, moving around the site and welfare issues.

A Construction Phase Plan and Safety File will be prepared prior to construction as part of the CEMP. This strategic plan will cover risk assessments and method statements relevant to the whole project including post-construction operations

The CEMP will capture all of the working practices including health and safety considerations ensuring that risks to health are reduced to an insignificant level.

To reiterate previous assertions, the OCEMP will form part of the EIAR as an Appendix to Chapter 2.

Within the context of the proposed approach, where all considerations will be addressed separately, it is again respectfully proposed that a further standalone human health chapter is not considered necessary for inclusion in the EIA Report.

5.2.7 Major Accidents & Disasters

As outlined above in Section 5.2.6.4 under the consideration of Human Health, the construction phase of the project will be effectively and appropriately controlled by the CEMP and the other detailed plans contained therein, an outline version of which will be provided as an Appendix to the EIAR.

During operation the risks of pollution incidents or other occurrences leading to major accidents and/or disasters are low. In any case, these will be assessed within the suite of proposed EIA Chapters set out in Section 6 below. This includes assessment in respect of hydrology and water quality as well as peat slide. Assessments will include appropriate measures to avoid or effectively mitigate the risk of any major accident in respect of these matters.

The proposed development is not likely to be vulnerable to major accidents and disasters and this will be set out within the project description Chapter of the EIAR. It is therefore proposed that a separate chapter to cover these matters is not necessary.

5.2.8 Heat & Radiation

Given the nature of the proposed development, no significant radiation or heat effects are anticipated, and these effects have been scoped out of the assessment.

5.2.9 Agricultural Land Classification (ALC) and Land Use

Agriculture and Land Use Assessments are typically including in EIAR or as part of application packages where there is potential for impacts on "Prime" agricultural lands. Prime land is defined as Classes 1, 2 and 3.1 of the Land Capability for Agriculture (LCA) system.

A review of the Macaulay Land Use Research Institute's LCA in Scotland map indicates that the site is comprised of Class 5 and 6 lands – improved grassland or rough grazing. Further as set out previously within Section 2.1 of this Report, the site has recently been subject to a forest planting scheme comprising a mix of commercial softwood and broadleaf species. There is an agreement that turbines can be "key-holed" within the forestry area.

Accordingly the Proposed Development is not located on any lands identified as "prime" nor will they impact on the existing land use at the site. In light of this, it is proposed that ALC and land use is scoped out of the EIAR.

5.2.10 Climate Change

The entire project is driven by the climate change emergency and overarching drive at international, national and regional levels to offset carbon emissions.

Resilience to future climate change has been considered during the design process to take account of potential constraints including future flood risk and resilience to extreme weather events.

Each topic chapter of the EIAR will consider predicted changes in baseline environmental conditions, including changes resulting from climate change, where robust information regarding future climate change is available at the time of writing. The climate change information will cover the anticipated operational lifetime of the proposed development. The assessment of effects for each topic will take into account identified trends or changes predicted to arise as a result of climate change.

5.2.10.1 Effects of the Project on Climate Change

Greenhouse gas (GHG) emissions can occur throughout the lifecycle of a development, including during construction and operation of a proposed development. This can be affected by factors such as material use and energy demand. GreenPower will apply best practice measures during construction to reduce fuel, energy and raw material consumption, and waste generation.

Construction of the Proposed Development will generate a limited amount of greenhouse gas emissions and the turbines will incorporate some embodied carbon.

Any carbon contribution must be measured against the energy offset created by the development which will lead to net positive impact on climate change.

The Scottish Governments Carbon Calculator Tool will be used to produce a statement of the expected carbon savings over the lifetime of the proposed development which will be appended to Chapter 2 of the EIAR. Carbon emissions associated with ground conditions, access works, foundations, materials used, transportation of materials and components to site, and any carbon loss through tree felling or through degradation of peaty soils will be considered.

Taking into account the above approach, which includes an assessment of carbon savings, it is proposed that a separate chapter on climate change is not required as part of the EIAR.

5.2.11 Contamination

Given the sites previous use for hill-farming, livestock grazing and existing newly planted forestry, major sources of contamination are unlikely.

During construction the main potential for contamination is likely to be through leakage of fuel from onsite machinery. The potential for this will be appropriately negated by best practice management procedures, detailed in the OCEMP which will be appended to Chapter 2 of the EIAR.

This will include a Pollution Prevention Plan and an emergency spillage response plan, which will be worked up and adopted by the contractor prior to construction. These documents will take account of Guidance for Pollution Prevention (GPP) documents and remaining Pollution Prevention Guidance (PPG) documents as required.³

Contaminated land will also be considered as required within Chapter 8 – Geology and Soils (Including Peat). Please refer to Section 6.8 of this Scoping Report.

It is proposed that consideration of contamination is appropriately covered by the approach outlined. Accordingly it is not intended to include a specific EIAR Chapter separately considering this issue.

³ GPP's replace the old series of PPG. In Scotland the remaining PPG that have not yet been replaced should still be considered as a source of good practice guidance.

5.3 Proposed Chapters

Table 5.1: Confirmation of Proposed EIAR Structure

Structure of the EIA Report	
Non-Technical Summary	
Volume I: Text	
Chapter 1	Introduction
Chapter 2	Project Description
Chapter 3	Alternatives
Chapter 4	Landscape and Visual Impact
Chapter 5	Ecology
Chapter 6	Ornithology
Chapter 7	Hydrology and Flood Risk
Chapter 8	Geology and Soils (including Peat)
Chapter 9	Noise
Chapter 10	Traffic and Transport
Chapter 11	Archaeology and Cultural Heritage
Chapter 12	Forestry
Chapter 13	Shadow Flicker
Chapter 14	Aviation and EMI
Chapter 15	Socio-Economics and Tourism
Chapter 16	Interactions
Volume II: Figures	
Volume III: Appendices	
Including specialist reports forming technical appendices to the main text.	

As per Section 5.2.1, it is proposed that a planning statement will also accompany the application for consent, drawing on the contents of the technical assessments contained within the EIAR and applying the conclusions contained therein to the operational planning policy to be applied to the Proposed Development.

6 PROPOSED EIAR

6.1 Chapter 1: Introduction

The introduction to the EIAR will:

- Provide high level details of the application, which will be expanded upon within the Project Description (Chapter 2);
- Confirm the EIA legislative context and provide an overview of the process leading to submission of the EIAR; and
- Confirm the structure of the EIAR.

6.2 Chapter 2: Project Description

The EIA Report will include a description of the project, which will form the basis of the assessment of effects. The EIA Regulations require an EIA Report to include:

“A description of the development comprising information on the site, design and size and other relevant features of the development”

This project description chapter will include details of the site, together with a description of the key components of the Proposed Development. The description will include the following information, as far as practicable at the time of writing:

- Construction phase - a description of the key works, activities and processes that would be required during the construction phase; and
- Operational phase - a description of the completed development and its use.

Where options remain at the time of the assessment (with regard to construction techniques, for example), the EIA Report will provide a clear explanation of the assumptions made. Where appropriate, the realistic worst-case scenario will be assessed (Refer to Section 4 of this Report).

Where mitigation measures have been identified and developed through the EIA process and have been incorporated as part of the project, details of these measures will be set out within the project description chapter.

6.3 Chapter 3: Alternatives

The EIA Regulations require the alternatives considered by the applicant to be set out in the ES:

*'A description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale), studied by the developer, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, including a comparison of the environmental effects.'*⁴

This chapter will summarise the options considered during the project lead-in including the design process resulting in the final emergence of the Proposed Development brought forward for consideration.

⁴ Schedule 4 – Paragraph 4 The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017

6.4 Chapter 4: Landscape and Visual Impact

6.4.1 Introduction

This section of the Scoping Report considers the potential Landscape and Visual effects of the Proposed Development arising during construction, operation and maintenance and during decommissioning.

The purpose of a Landscape & Visual Impact Assessment (LVIA) is to determine, in a transparent way, the likely significant effects of the Proposed Development on the landscape or visual receptors.

6.4.2 Study Area

The landscape and visual study area has been selected to capture the area with potential for significant effects and has been defined having regard for the scale of the Proposed Development and its potential visibility within the surrounding landscape, the baseline conditions and informed by field survey and production of a draft Zone of Theoretical Visibility (ZTV). The draft ZTV has been prepared based on:

- The candidate turbine choice with an overall tip height of 180m;
- The Scoping Layout included as Figure 2 of Appendix A;
- A distance of 45km to the Proposed Development – see Figure 6.1. A further copy of this Figure is included as Figure 3 in Appendix A of this Report.

It is deemed that beyond a distance of 45m, that no likely significant effects would arise.

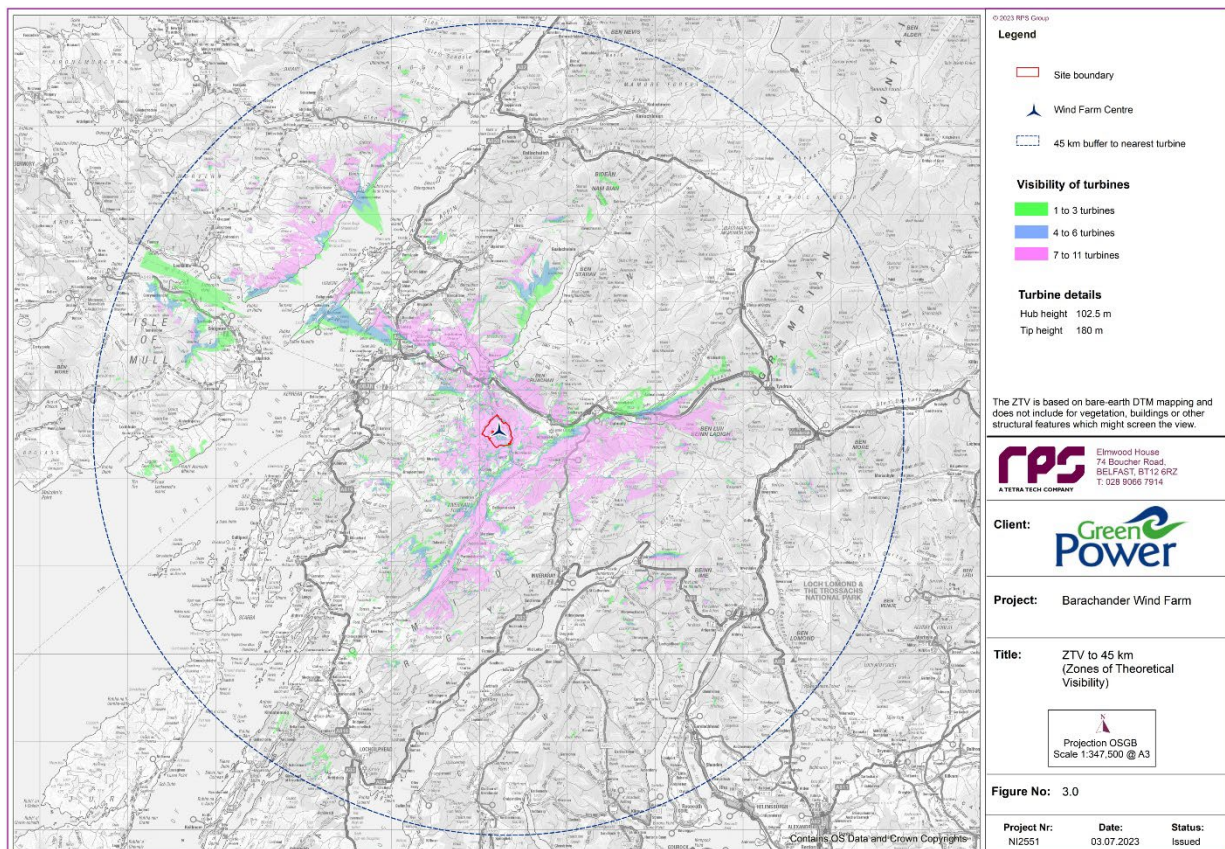


Figure 6.1: ZTV

6.4.3 Baseline Environment

The Proposed Development is located to the west of Barachander Farm. The closest villages to the Proposed Development site is Taynuilt, which is approximately 4.3km north of the site and Kilchrenan – a much smaller settlement – located c.1.5km south.

Until recently the site was used for hill grazing, primarily sheep, and is a combination of grass, heather and bracken but was planted in 2022 for commercial forestry. The ground ranges in height from c.150m above sea level up to c.280m at the summit of Cruachan Achadh na Craoibhe and is bounded to the north by the Glen Nant Site of Special Scientific Interest (SSSI), the local B845 road along the east and Loch Nant and a commercial forestry block to the west. The ground is of moderate steepness providing variable natural drainage. Apart from the area identified as Glen Nant SSSI the proposal site is primarily open ground with scattered individual broadleaved trees, reflective of its management history.

The site is located within the Landscape Character Type (LCT), identified as Craggy Upland – Argyll (LCT 40). The immediate surrounding area is very sparsely populated with very few settlements. The surrounding area primarily consists of dense vegetation with one local road to the east of the site. The local landscape is crossed by tall electricity towers with overhead lines that extend along the Proposed Development site, but these do not dominate the views from the local B845 road. Views of the Proposed Development site are generally well screened by dense vegetation along the B845 road and by the hills and irregular landform which is synonymous with the Craggy Upland character type.

Table 4.5 of this Scoping Report confirms those wind farms within 45k of the site, the nearest of which are Carraig Gheal and Beinn Ghlas.

6.4.4 NatureScot Landscape Character Type

A review of the National Landscape Character Type Assessment completed by NatureScot, has identified that the Proposed Development is wholly located within the Landscape Character Type (LCT), identified as Craggy Upland - Argyll (LCT 40).

Craggy Upland – Argyll (LCT 40)

A review of the accompanying information, provided by NatureScot, has identified that this LCT '*is found in several locations in the north and north-west of Argyll and Bute. It forms a higher core area which comprises an irregular upland plateau lying either side of and around the head of Loch Awe, a smaller area north of Loch Creran, on the south-east peninsula of Mull in the Loch Spelve area, and on the upland cliffs of the Kyles of Bute.*'

In respect of key characteristics, the description provided by NatureScot, identifies the following;

- *Upland moor with irregular, rather amorphous landform.*
- *Rounded knolls, rock outcrops and numerous lochs in low-lying hollows and glens.*
- *Open moorland predominates, but extensive conifer plantations camouflage the landscape pattern in some areas.*
- *Oak-birch woodland on lower slopes.*
- *Stone walls enclose an irregular patchwork of pastures within glens on margins of moorland.*
- *Isolated farmsteads and small villages in sheltered sites within glens.*
- *Numerous archaeological remains, often concentrated on rounded knolls on lower slopes.*
- *Historic intricate, irregular landscape pattern in glens.*

The Landscape Character description identifies the following elements associated with the LCT;

Landform

The underlying Dalradian rocks of the Craggy Upland – Argyll Landscape Character Type are metamorphic schists, mostly of a type known as the Argyll Group. The landform is craggy, with numerous rocky outcrops which stand out as rounded knolls on the lower slopes. The uplands are dissected by steep glens to form broad ridges with an irregular, jumbled silhouette. Where the Craggy Upland - Argyll meets the south-east coast of Mull it forms sheer cliff faces.

Lochs are characteristic of the remote upland areas, caught in the rounded hollows in the landform. There are no prominent summits. The average elevation of the upland moor is approximately 300 metres, considerably lower than the mountains to the north and east. The uplands become higher and broader in scale towards the north. Burns flow in narrow gullies leading from the moorland, but in broader glens on the lower slopes. The rounded knolls remain as distinctive, prominent landscape features within the valleys. A series of small-scale glens, some containing narrow lochs, occurs east and south of Oban.

Landcover

The upland areas are a very large-scale mosaic of unenclosed open moorland and extensive conifer forests. The forests are concentrated on the uplands between Inveraray and Loch Awe but are a common landscape element on the upland plateau. The patchy mosaic of rock outcrops, heather and moorland grass gives the uplands a characteristic mottled appearance. Overall, this is a relatively simple vegetation pattern.

Settlement

The heart of the Craggy Upland - Argyll is very sparsely settled with roads aligned in glens and views restricted by the extensive conifer forest and loch-side woodland. Immediate skylines formed by hills on the edges of the area, which are visible from more settled surrounding loch shores and glens.

The glens have a more managed, settled, farmland character, with an intricate pattern of broadleaved woodland, pastures and settlements. Large pastures are enclosed by stone walls or, in some areas, by hedgerows, and isolated farmsteads and cottages are found in sheltered sites along the edges of the glen. The field pattern has a historic character, with fields of irregular shapes and sizes. Many of the pastures are in poor condition, with rushes and patches of bog or scrubby damp woodland in low-lying areas. There are straight drainage ditches across damper fields. Stands of oak trees on rounded knolls are often prominent local landscape features and extensive oak-birch woodlands are also found on the glen slopes. There is pressure for development in some scenic coastal areas.

There are numerous archaeological sites and many of the rounded knolls are the sites of ancient Iron Age forts or duns. The ancient sites are often close to existing settlements.

The Craggy Upland - Argyll accommodates a number of operational and consented wind farms which are prominent features when seen from Loch Awe.

Perception

The landscape has, in the main, a wild, natural character. Most of the area is inaccessible by car or on foot owing to the steep and rugged landform. Farms are concentrated in the few broader glens on the margins of the moorland such as Kilmichael Glen and Musdale, and on loch edges. Buildings are constructed from the local grey-green stone, and most are painted white.

6.4.5 Landscape Policies – The Argyll and Bute Local Development Plan 2015

A review of the adopted Local Development Plan (LDP), The Argyll and Bute Local Development Plan 2015, has identified the following policies of relevance to this LVIA;

Policy LDP 3 – Supporting the Protection, Conservation and Enhancement of our Environment

In all development management zones, Argyll and Bute Council will assess applications for planning permission with the aim of protecting conserving and where possible enhancing the built, human and natural environment.

A development proposal will not be supported when it:

(C) does not protect, conserve or where possible enhance the established character of the built environment in terms of its location, scale, form and design.

(D) has not been ascertained that it will avoid adverse effects, including cumulative effects, on the integrity or special qualities of international or nationally designated natural and built environment sites.

Further information and detail on matters relating to the natural environment, landscape, and the historic environment will be provided in Supplementary Guidance.

(E) has significant adverse effects, including cumulative effects, on the special qualities or integrity of locally designated natural and built environment sites.

Where there is significant uncertainty concerning the potential impact of a Proposed Development on the built, human or natural environment, consideration will be given to the appropriate application of the precautionary principle, consistent with Scottish Planning Policy.

6.1 The above policy is supported by supplementary guidance; SG LDP ENV 13-21 relate to the historic built environment and archaeology and the policies are cited below:

SG LDP ENV 13 – Development Impact on Areas of Panoramic Quality

“Argyll and Bute Council will resist development in, or affecting, an Area of Panoramic Quality where its scale, location or design will have a significant adverse impact on the character of the landscape unless it is adequately demonstrated 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;

In all cases the highest standards, in terms of location, siting, design, landscaping, boundary treatment and materials, and detailing will be required within Areas of Panoramic Quality.”

SG LDP ENV 15 – Development Impact on Historic Gardens and Designed Landscapes

“Where development would affect a heritage asset or its setting the developer will be expected to demonstrate that the impact of the development upon that asset has been assessed and that adequate measures will be taken to preserve and enhance the special interest of the asset. Measures of assessment will be expected to follow the principles set out in the joint guidance “New Design in Historic Settings” produced by Historic Environment Scotland, Architecture and Place, Architecture and Design Scotland. Guidance provided in Scottish Historic Environment Policy and Managing Change in the Historic Environment Guidance Notes, which are available to download from Historic Environment Scotland’s website, is also expected to be followed.

Measures to mitigate against impact are likely to include enhanced physical access, interpretation and the provision of an open space or landscaped buffer zone, as appropriate.

In assessing proposals for development in, or adjacent to, gardens or designed landscapes particular attention will be paid to the impact of the proposal on:

(A) The archaeological, historical or botanical interest of the site;

(B) The site’s original design concept, overall quality and setting;

(C) Trees and Woodland and the site’s contribution to local landscape character within the site including the boundary walls, pathways, garden terraces or water features; AND,

(D) Planned or significant historic views of, or from, the site or buildings within it.”

SG LDP ENV 16(a) – Development Impact on Listed Buildings

“Development affecting a listed building or its setting shall preserve the building or its setting, and any features of special architectural or historic interest that it possesses.

All developments that affect listed buildings or their settings must

- 1) be of the highest quality, and respect the original structure in terms of setting, scale, design and materials,*
- 2) the Proposed Development is essential to securing the best viable use of the listed building without undermining its architectural or historic character, or its setting.*
- 3) the Proposed Development conforms to Scottish Historic Environment Policy 2011 and the accompanying Managing Change Guidance Notes,*

Where development would affect a heritage asset or its setting the developer will be expected to satisfactorily demonstrate that the impact of the development upon that asset has been assessed and that measures will be taken to preserve and enhance the special interest of the asset. The use of appropriate design statements and conservation plans are expected to facilitate this assessment. Where the development may have a significant impact, measures of assessment will be expected to follow, the principles set out in the joint guidance “New Design in Historic Settings” produced by Historic Environment Scotland, Architecture and Place, Architecture and Design Scotland.”

6.4.6 Landscape Policies – The Argyll and Bute Proposed Local Development Plan 2

The Proposed Local Development Plan 2 is currently under review and contains policies of relevance that are cited below:

Policy 15 – Supporting the Protection, Conservation and Enhancement of Our Historic Built Environment

Development proposals will not be acceptable where they fail to:

- protect, preserve, conserve or enhance the established character of the historic built environment in terms of its location, scale, form, design or proposed use; or*
- avoid any cumulative effect upon the integrity or special qualities of designated built environment sites.*

When there is significant uncertainty concerning the potential impact of a Proposed Development on a designated site, consideration will be given to the appropriate application of the precautionary principle.

Policy 16 – Listed Buildings

A. Development

A development proposal which affects a Listed Building, its curtilage or its wider setting will only be supported when it meets ALL of the following criteria:

- It respects the original structure in terms of setting, scale, design, materials and proposed use, AND*
- the proposal is essential to securing an appropriate use of the Listed Building without undermining its architectural or historic character, or its setting, AND*
- It conforms to national policy and guidance, including but not limited to those set out in the section above ‘Related Documents’.*

The developer is expected to demonstrate to the planning authority’s satisfaction, that the effect of a Proposed Development on a Listed Building, its curtilage and wider setting has been assessed and that measures will be taken to protect, conserve and where appropriate enhance the special interest of the asset. The use of appropriate access statements, design statements and conservation plans are expected to facilitate this assessment.

B. Demolition

Proposals for the total or partial demolition of a listed building (or any ancillary structure within its curtilage) will be supported ONLY where it is demonstrated to the satisfaction of the planning authority that every effort has been exerted by all concerned to find practical ways of keeping it. This will be demonstrated by inclusion of evidence to the planning authority that the building meets one or more of the following criteria:

- Written evidence can be provided that it has been actively marketed at a reasonable price reflecting its location, condition, redevelopment costs and possible viable uses for a period of not less than 12 months without finding a purchaser, OR
- Is beyond economic repair and incapable of re-use for modern purposes through the submission and verification of a thorough structural condition report prepared by a conservation accredited professional and a detailed and verifiable breakdown of costs in line with guidance provided in Historic Environment Scotland's Managing Change Guidance Note "Demolition", OR
- The demolition is considered to be essential for wider community economic benefits. This would only be considered if the proposed redevelopment was of regional or national significance and that clear evidence shows that every effort was made to incorporate the listed building into the new development or that every effort to place the new development in an alternative location was made.

Prior to the approval of demolition, the planning authority may require to have approved detailed proposals submitted by the developer for the restoration and reuse of the site, including any replacement buildings or other structures in order to preserve the integrity of the site, and may require that a contract be let for redevelopment in advance of demolition in appropriate cases.

The planning authority will also consider attaching conditions in respect of one or more of the following:

- The recording of the building to be demolished, in addition to the requirement to formally notify Historic Environment Scotland
- Methods of demolition to be employed
- The conservation, retention or salvaging of architectural or other features, artefacts or other materials.

Policy 17 – Conservation Areas

A. Development

There is a presumption against development that does not protect, conserve or enhance the character or appearance of an existing or proposed conservation area or its setting. New development within these areas and on sites affecting their settings must respect the architectural, historic and other special qualities that give rise to their actual or proposed designation and conform to the following national policies and guidance including, but not limited to, section above 'Related Documents' and the area's Conservation Area Appraisal and Management Plan (if in place).

The developer is expected to satisfactorily demonstrate to the planning authority that the effect of a Proposed Development on a conservation area 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 area. The use of appropriate design statements, character appraisals and conservation plans are expected to facilitate this assessment.

Applications for planning permission in principle will not normally be considered appropriate for Proposed Development in conservation areas.

The contribution which trees make towards the character or appearance of a conservation area will be taken into account when considering development proposals.

B. Demolition

Proposals for the total or substantial demolition of a building within or affecting the character or appearance of a conservation area or its setting will be considered as if the structure was listed – as set out in Policy 16 – Listed Buildings (B).

Policy 20 – Gardens and Designed Landscapes

There will be a presumption in favour of retaining, protecting, conserving and enhancing gardens and designed landscapes, either listed in the inventory of gardens and designed landscapes, or otherwise deemed to be of significant value.

Where development would affect a garden and designed landscape the developer will be expected to demonstrate to the planning authority that such an effect has been assessed and that adequate measures will be taken to protect, conserve and where possible enhance the special interest of the asset. Measures of assessment will be expected to follow the principles set out in the ‘Related Documents’.

In assessing proposals for development in or adjacent to gardens and designed landscapes particular attention will be paid to the impact of the proposal on all of the following:

- *The archaeological, historical or botanical interest of the site, AND*
- *The site’s original design concept, overall quality and setting, AND*
- *Trees and woodlands and the site’s contribution to local landscape character within the site including the boundary walls, pathways, garden terraces or water features, AND*
- *Planned or significant views of, or from, the site or buildings within it.*

Policy 30 – The Sustainable Growth of Renewables:

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 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. Proposals for new wind turbine developments over 50 meters high should be sited in appropriate locations in accordance with the Spatial Framework which shows in line with Scottish Planning Policy:

- *Areas where wind farms will not be acceptable.*
- *Areas of significant protection.*
- *Areas which may have potential for wind farm development.*

Applications for all wind turbine developments will be assessed against the following criteria:

- *Impacts on communities and individual dwellings, including visual impact, residential amenity, noise and shadow flicker.*
- *Landscape and visual impacts, including effects on wild land.*
- *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.*

Policy 70 – Development Impact on National Scenic Areas (NSA’s)

The aim of this policy is to provide landscapes of national importance located within Argyll and Bute with adequate protection against damaging development that would diminish their outstanding scenic value. There are seven NSAs within Argyll and Bute.

These NSAs encompass some of the most varied and valuable landscapes and coastscapes in Scotland. These NSAs are important not only for their physical landforms and scenic splendour, but also for the environmental assets that they represent. These qualities could easily be destroyed or damaged by even relatively small, insensitive development or in some areas by any development at all. They therefore must be protected.

Argyll and Bute Council will resist any development in, or affecting, National Scenic Areas that would have an adverse effect on the integrity of the area either individually or cumulatively, or that would undermine the Special Qualities of the area unless it is adequately demonstrated that:*

- a) 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; and*
- b) The proposal is supported by an LVIA and consistent with the relevant Argyll and Bute Landscape Capacity Assessment.*

Policy 71 – Development Impact on Local Landscape Areas (LLA)

The aim of this policy is to provide locally important landscapes in Argyll and Bute, with adequate protection against damaging development that would diminish their high scenic value. These LLA’s are important not only for their physical landforms and scenic value, but also for the environmental assets that they represent. These qualities could easily be destroyed or damaged by even a relatively small, insensitive development. They therefore must be protected.

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 unless it is adequately demonstrated 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; and*
- b) The proposal is supported by an LVIA and consistent with the relevant Argyll and Bute Landscape Capacity Assessment.*

Policy 72 – Development Impact on Areas of Wild Land

The wild character of parts of Argyll and Bute provide valued elements to local and national identity. They are enjoyed for recreational purposes and aesthetic reasons and are significantly important to the tourism industry, attracting visitors from around the globe.

Intrinsically linked to landscape these Wild Land Areas in Scotland have been shrinking over time. Their character is under threat, with increasing pressure from development both within the Wild Land Areas and from the impact of development adjacent to them. This development pressure often arises from renewables development, infrastructure development and from aquaculture / agricultural development, including hill tracks.

As areas of Wild Land have shrunk, they have increased in value due to rarity, and so now require protection to ensure their retention both for locals and visitors at the present time and for future generations.

Developers submitting proposals that impact upon Areas of Wild Land will be expected to submit supporting evidence that addresses the impact on the wild character of an Area of Wild Land. This should be in the form of a detailed assessment of the actual expected impact, including the area affected, the degree of impact and any mitigation proposed. Such proposals will only be supported when the resultant impact of a development on wild character is considered acceptable in terms of no significant diminution of the resource.

Argyll and Bute Council will resist development proposals, located either within or outwith the defined Wild Land Areas, where it is determined that the proposal would significantly diminish the wild character of an Area of Wild Land, unless these adverse effects are clearly outweighed by social, economic or environmental benefits of national importance.

Special Landscape Areas

A review of the LDP 2015 and Proposed LDP 2 the Local Landscape Area/Area of Panoramic Quality – North Argyll - runs through the middle of the Proposed Development Site. As such, policy SG LDP ENV 13 – Development Impact on Areas of Panoramic Quality in the LDP 2015 should be considered.

In relation to development in a Local Landscape Area, the Proposed LDP 2 states, “*Policy 71 – Development Impact on Local Landscape Areas (LLA) - 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 unless it is adequately demonstrated 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; and*
- b) The proposal is supported by an LVIA and consistent with the relevant Argyll and Bute Landscape Capacity Assessment.”*

There are also seven National Scenic Areas within the Argyll and Bute Council area. These are:

- Knapdale
- Scarba, Lunga and The Garvellachs
- Jura
- Lynn of Lorn
- Loch Na Keal
- Ben Nevis and Glencoe (Part of)
- Kyles of Bute

While none of the NSAs mentioned above will be directly impacted by the Proposed Development, the views from the NSAs will need to be assessed in order to determine whether this aspect will be impacted by the Proposed Development.

6.4.6.1 LDP2 Review

As set out in Section 2.3.1 the Report of Examination into LDP2 was published on 13th June 2023. This Report made a series of recommendations including in respect of the aforementioned policies, 15, 16, 17, 20, 30, 70, 71 and 72. To reiterate, this included a recommendation in respect of Policy 30 which was to remove the spatial framework contained within Diagram 7.

At the time of writing, whilst LDP2 has yet to be adopted the thrust of the recommendations contained within the Report of Examination are in accordance with Chief Planner’s advice of 8th February 2023, which advises to reconcile any inconsistencies with NPF4 through the examination process.

6.4.7 Argyll and Bute Landscape Wind Energy Capacity Study

The Argyll and Bute Landscape Wind Energy Capacity Study (ABLWECS) was originally undertaken in 2012 and revised and updated in 2017. The ABLWECS considers the capacity of the Argyll and Bute landscape to accommodate onshore wind energy development. Following the newly adopted NPF4 and the review of the ABC LDP by the DPEA, references to the ABLWECS will be considered appropriately.

6.4.8 Gardens and Designed Landscapes

The Inventory of Gardens and Designed Landscapes (GDL), under the remit of Historic Environment Scotland (HES) has prepared surveys of GDL's within Scotland. A review of the inventory held by HES has identified that there are 3 GDL's within 10km of the Proposed Development.

The closest GDL is Ardanaiseig House (GDL00018), which is located approximately 3.73km from the Proposed Development site.

The GDL Ardchattan Priory (GDL00019) is located approximately 8.75km from the Proposed Development site.

The GDL Achnacloich (GDL00007) is located approximately 9.1km from the Proposed Development site.

6.4.9 National Cycle Network

The Proposed Development is located adjacent to National Route 78 of the National Cycle Network. The section of the Route beside the Proposed Development is known as the Caledonia Way and is located on the local B845 Road.

6.4.10 Argyll and Bute Core Paths Network

There are two Core Paths that lie within close proximity to the Proposed Development site, which has been identified from the available GIS information associated with the LDP. The first identified Core Path ID C300(b) - Kilchrenan to Taynuilt is a 8.4km long route located on the local B845 road, to the immediate northeast of the Proposed Development.

There is also Core Path ID C171(b) - Kilmore - Loch Nant - Kilchrenan, a 13km long route, which is located to the immediate south of the Proposed Development. However, this path is not graded.

6.4.11 Proposed Assessment Methodology

6.4.11.1 Relevant Policy, Legislation and Guidance

The methodology for the LVIA chapter will be derived from Guidelines for Landscape and Visual Impact Assessment, Third Edition (The Landscape Institute and Institute of Environmental Management & Assessment, 2013, GLVIA3).

The landscape is appraised to allow it to be described and classified into landscape character areas that in turn enable the classification of landscape quality. The capacity of the landscape to accept change of the type proposed is assessed by determining the sensitivity of each landscape character area. Overall key landscape components are normally landform, vegetation and historical and cultural components. Landform relates to topography, drainage characteristics and geology. Historical and cultural components include historic landscapes, listed buildings, conservation areas and historic designed landscapes. Vegetation plays an important role in how the landscape and visual resources of an area are viewed and is an integral component of a landscape character.

Site visits will be undertaken to assess the existing environment, to establish the existing visual resource and to identify sensitive receptors, i.e. landscape receptors, visual receptors including residential properties and any scenic viewpoints. Site visits will also be used to establish the perceived extent of landscape and visual effects that may be associated with the Proposed Development.

The Proposed Development is then applied to this landscape and visual baseline and potential effects predicted.

A series of viewpoints have been selected to meet the following criteria, with locations illustrated on Figure 6.2 (also provided as Figure 4 within Appendix A of this Report):

- A balance of viewpoints from where main direction of view is towards the project;
- A range of views of the Proposed Development covering the extent of the study area Zone of Theoretical Visibility (ZTV). Selected viewpoints have all been located within the study area associated with the Proposed Development;
- A proportion representing areas known to be available to the community where people may frequently congregate; and
- Locations of interest, e.g., settlements; amenity or recreation areas.

The following viewpoints have been selected for detailed assessment as part of the landscape and visual impact assessment:

Viewpoint 1: An Sleaghach

Viewpoint 2: B8045 (Lismore)

Viewpoint 3: Achnacroish (Lismore)

Viewpoint 4: Lochneill House (Benderloch)

Viewpoint 5: North Ledaig Caravan Park

Viewpoint 6: Achnacreebeag (Bonawe Road)

Viewpoint 7: Ardchattan Priory

Viewpoint 8: Beinn Duirinnis

Viewpoint 9: Ben Cruachan

Viewpoint 10: Cruachan Dam

Viewpoint 11: B845 / Bonawe Road

Viewpoint 12: Beinn Sgulaird

Viewpoint 13: Brochroy

Viewpoint 14: Brochroy Ferry Pier

Viewpoint 15: Cladich

Viewpoint 16: Cruach Mhor

Viewpoint 17: Ardanaiseig Cottage

Viewpoint 18: Dalmally

Viewpoint 19: Portsonachan

Viewpoint 20: Clachan Hill

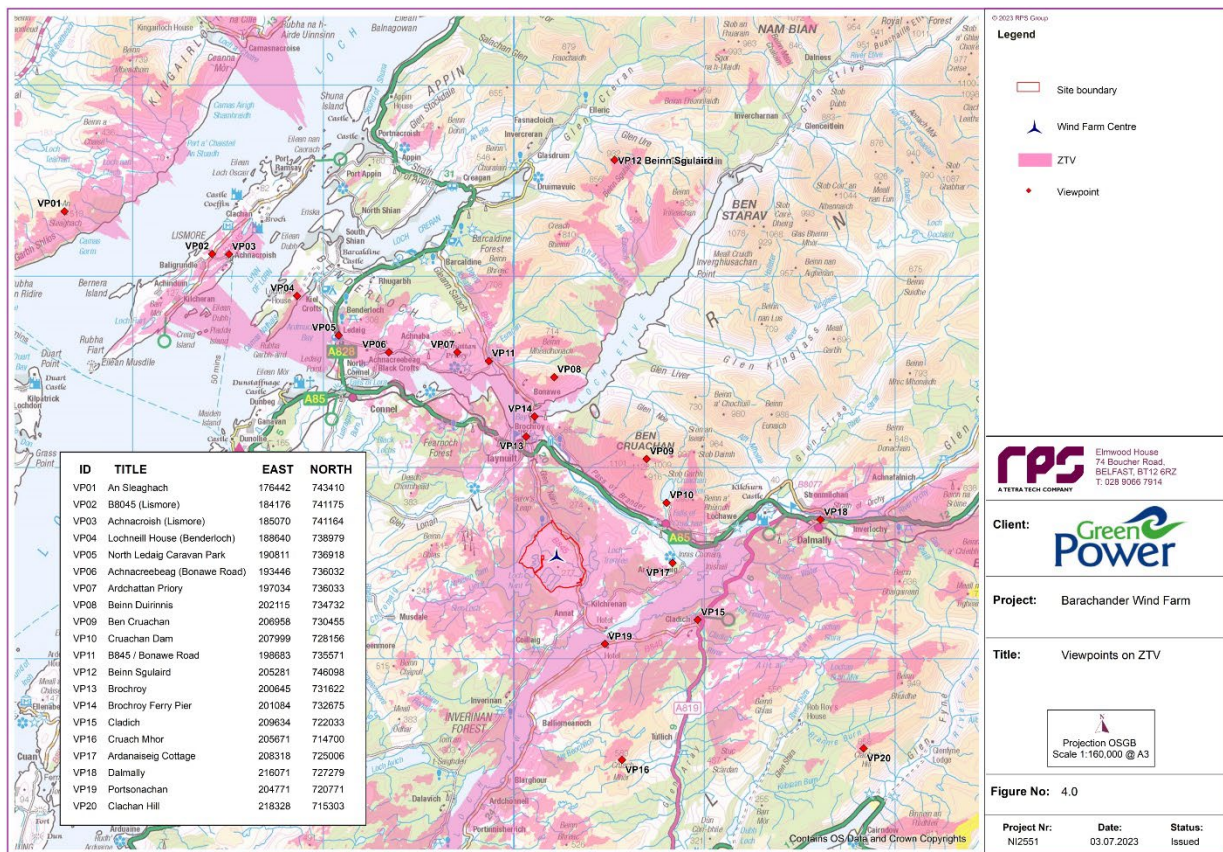


Figure 6.2 Viewpoint Location Map

6.4.11.2 Assessment of Effects

The purpose of this LVIA is to determine, in a transparent way, the likely significant landscape and visual effects of the Proposed Development. It is accepted that, due to the nature and scale of development, the Proposed Development could potentially give rise to some notable landscape and visual effects.

GLVIA3 identifies that ‘..... a final judgment is made about whether or not each effect is likely to be significant. There are no hard and fast rules about what effects should be deemed ‘significant’ but LVIA’s should always distinguish clearly between what are considered to be significant and non-significant effects’.

Significance can only be defined in relation to each particular development and its specific location. The relationship between receptors and effects is not typically a linear one. It is for each LVIA to determine how judgements about receptors and effects should be combined to derive significance and to explain how this conclusion has been arrived at.

The identification of significant effects would not necessarily mean that the effect is unacceptable in planning terms. What is important is that the likely effects on the landscape and visibility are transparently assessed and understood in order that the determining authority can bring a balanced, well-informed judgement to bear when making the planning decision. This is particularly important given the subjectivity of ‘views’ and the broad acceptance of wind turbines in the environment underpinned by policy, which acknowledges a requirement for taller and more efficient turbines in order to deliver on climate change targets.

The significance of effects on landscape, views and visual amenity have been judged according to a six-point scale: Substantial, Major, Moderate, Minor, Negligible or None as presented in **Table 6.4.1** below, which contains a description of the significance of effect criteria.

Table 6.4.1: Significance of Effect Criteria

Significance of Effect	Landscape Resource	Visual Resource
None	Where the project would not alter the landscape character of the area.	Where the project would retain existing views.
Negligible	Where proposed changes would have an indiscernible effect on the character of an area.	Where proposed changes would have a barely noticeable effect on views/visual amenity.
Minor	Where proposed changes would be at slight variance with the character of an area.	Where proposed changes to views, although discernible, would only be at slight variance with the existing view.
Moderate	Where proposed changes would be noticeably out of scale or at odds with the character of an area.	Where proposed changes to views would be noticeably out of scale or at odds with the existing view in the opinion of the landscape architect.
Major	Where proposed changes would be uncharacteristic and/or would significantly alter a valued aspect of (or a high quality) landscape.	Where proposed changes would be uncharacteristic and/or would significantly alter a valued view or a view of high scenic quality in the opinion of the landscape architect.
Substantial	Where proposed changes would be uncharacteristic and/or would significantly alter a landscape of exceptional landscape quality (e.g., internationally designated landscapes), or key elements known to the wider public of nationally designated landscapes (where there is no or limited potential for substitution nationally).	Where proposed changes would be uncharacteristic and/or would significantly alter a view of remarkable scenic quality, within internationally designated landscapes or key features or elements of nationally designated landscapes that are well known to the wider public.

For the purposes of this assessment those subjective effects indicated, in **Table 6.4.2** below, as being Substantial or Major to Substantial are regarded as being significant. Effects of ‘Minor to Moderate’ and lesser significance have been identified within the assessment, though are not considered significant. For those effects indicated as being of ‘Moderate’ or ‘Moderate to Major’ the assessor has exercise professional judgement in determining if the effect is considered to be significant, taking account of site specific or location specific variables which are given different weighting in each instance according to location.

Table 6.4.2: Significance of effects matrix

Magnitude of Impact	Sensitivity				
	Negligible	Low	Medium	High	Very High
No Change	No Change	No Change	No Change	No Change	No Change

Magnitude of Impact	Sensitivity				
	Negligible	Low	Medium	High	Very High
Negligible	Negligible	Negligible to Minor	Negligible to Minor	Minor	Minor
Small	Negligible to Minor	Negligible to Minor	Minor	Minor to Moderate	Moderate to Major
Medium	Negligible to Minor	Minor	Moderate	Moderate to Major	Major to Substantial
Large	Minor	Minor to Moderate	Moderate to Major	Major to Substantial	Substantial

A conclusion that an effect is 'significant' should not be taken to imply that the Proposed Development is unacceptable. Significance of effect needs to be considered with regard to the scale over which it is experienced and whether it is beneficial or adverse. LVIA is also an inherently subjective matter that has to be considered and balanced against all other decision-making criteria. The assessment will consider effects during construction, operational and decommissioning phases.

6.4.12 Potential Cumulative Effects

An assessment of any cumulative effects that could arise through other plans, projects and ongoing activities within the study area will be undertaken based on available information due to the construction, operation and maintenance, and decommissioning from the Proposed Development.

Cumulative effects landscape and visual effects on individual or specific groups of receptors will also be considered.

The projects to be considered cumulatively with the Proposed Development are set out in Section 4.2.3 of this Scoping Report.

6.4.13 Scope of Assessment

6.4.13.1 Matters to be Scoped Out

Based on the findings of the initial desk-top consideration and baseline surveys it is not proposed to Scope Out any matters.

6.4.14 Scoping Questions to Consultees

- Do you agree with the data sources which are suggested for the assessment of landscape and visual effects?
- Do you agree with the landscape and visual methodology proposed?
- Do you agree that all sensitive receptors and impact pathways have been identified for landscape and visual?
- Do you agree with the 20 selected viewpoints for the landscape and visual assessment?

6.5 Chapter 5 - Ecology

6.5.1 Introduction

This section of the Scoping Report considers the potential ecological impacts of the Proposed Development arising during construction, operation and maintenance, and during decommissioning. It outlines the approach taken to describe the baseline conditions for non-avian sensitive ecology receptors within the site and surrounding area. Ornithology receptors will be addressed in Section 6.6 of this report.

An Ecological Impact Assessment (EclA) will be undertaken in line with current guidelines from the Chartered Institute of Ecology and Environmental Management (CIEEM) which will be presented in the Ecology chapter for the Environmental Impact Assessment Report (EIAR) for the Proposed Development.

6.5.2 Study Area

The following guidelines will be used when determining the ecology study area to be assessed in the EIA report:

- Designated sites: 10km buffer from the developable area for Special Areas of Conservation (SACs) with animal interests and Sites of Special Scientific Interest (SSSIs) with bat interests; 5km for other SAC, SSSIs and Ramsar sites; 2km for local sites and Ancient Woodland Inventory (AWI) woodlands.
- Habitats: A minimum 250m for deep (>1m) excavations or sensitive habitats (e.g., groundwater dependent terrestrial ecosystems), a minimum 100m from the developable area for all other habitats.
- Bats: A minimum 200m plus rotor radius around potential turbine locations for roosting bats, 30m from other works areas. 100m around turbine locations for foraging and/or commuting bats, 30m from other works areas for foraging and/or commuting bats.
- Other protected mammals: A minimum 300m around the developable area for otter *Lutra lutra* and 150m around the developable area for other species (e.g., badger *Meles meles*, pine marten *Martes martes*, red squirrel *Sciurus vulgaris*, water vole *Arvicola amphibius*). The ecology survey area is at least 50m greater than the guidance for each species to allow for micro-siting.
- Reptiles: 50m around the developable area.
- Fish: Potentially impacted watercourses within 100m of the developable area, possibly extending beyond this depending on the potential impact. Barriers to fish migration will also be recorded.
- Freshwater pearl mussel (FWPM): Habitat suitability in potentially impacted watercourses extending from 100m upstream of the developable area to 500m downstream of it.

The extent of the ecology study is expected to be within the redline boundary for the Proposed Development, although it may extend outside of this boundary depending on the final design.

6.5.3 Baseline Environment

6.5.3.1 Desk-Based Assessment

A search for designated sites within 10km of the site boundary was made using the following sources:

- NatureScot's SiteLink interactive map⁵;
- Scotland's Environment Web⁶; and

⁵ <https://sitelink.nature.scot/map>

⁶ <https://map.environment.gov.scot/sewebmap/>

- Argyll and Bute Council Open Data – Local Nature Conservation Site⁷.

The Loch Etive Woods Special Area of Conservation (SAC), Glen Nant Site of Special Scientific Interest (SSSI) and Glen Nant National Nature Reserve, which all have boundaries that at least partially overlap with each other, are located within and to the north of the redline boundary for the Proposed Development (Table 6.5.1, Figure 5 Appendix A). The sites are designated for woodland habitats, bryophyte and lichen assemblages, the crane fly *Tipula luridorostris* and otter. The Coille Leitire SSSI, which is also a part of the Loch Etive Woods SAC, is located approximately 3.7km east of the Proposed Development. No Local Nature Conservation Sites (LNCS) are present within 2km of the Proposed Development.

Numerous woodlands listed on the Ancient Woodland Inventory (AWI) are also present both within the periphery/immediately adjacent to the redline boundary for the Proposed Development or within 2km of it (Table 6.5.1, Figure 5 – Appendix A). Ancient woodlands will be included in the assessment and not it is anticipated that there will be significant effects to these woodlands as they are not located near the current proposed turbine locations.

Table 6.5.1: Designated Sites within 10km of the Proposed Development

Site Name	Site Type	Reason for Citation*	Distance from Proposed Development
Loch Etive Woods	SAC	<ul style="list-style-type: none"> Otter Alder woodland on floodplains Western acidic oak woodland Mixed woodland on base-rich soils associated with rocky slopes 	Adjacent/within
Glen Nant	SSSI	<ul style="list-style-type: none"> Bryophyte assemblage Lichen assemblage Crane fly <i>Tipula luridorostris</i> Upland oak woodland 	Adjacent/within
Glen Nant	NNR	<ul style="list-style-type: none"> Ancient woodland 	Adjacent/within
Coille Leitire	SSSI	<ul style="list-style-type: none"> Upland oak woodland 	3.7km east
Unnamed (various)	AWI	<ul style="list-style-type: none"> Ancient (of semi-natural origin) (1a) Ancient (of semi-natural origin) (2a) Other (on Roy map) (3) 	Adjacent/within
Coille Braigh na Cille, Unnamed (various)	AWI	<ul style="list-style-type: none"> Ancient (of semi-natural origin) (1a) Ancient (of semi-natural origin) (2a) Other (on Roy map) (3) 	0.1km – 2.0km

*only biological, non-avian features listed.

Abbreviations used in Table XX: AWI = Ancient Woodland Index woodland, NNR = National Nature Reserve, SAC = Special Area of Conservation; SSSI = Site of Special Scientific Interest.

To support the EclA, records of protected and notable species will be purchased from the Argyll Biological Records Centre. A comprehensive literature review will also be undertaken to search for records of protected and notable species within 2km of the Proposed Development. Potential sources of information include the

⁷ <https://data-argyll-bute.opendata.arcgis.com/datasets/d05f7337b41e48b4af933404dc0592a2/explore?location=56.373904%2C-5.137868%2C12.77>

SBL, Argyll and Bute LBAP, publicly available documents for nearby developments and annual reports from the Argyll District Salmon Fishery Board and Argyll Rivers Trust.

6.5.3.2 Field Surveys

Bat activity surveys and a walkover survey to identify the presence of otter and water vole were completed in 2022 within the redline boundary for the Proposed Development (Table 6.5.2). Otter and water vole surveys focused on areas of suitable habitat previously identified from Phase 1 Habitat surveys and an Ecological Scoping Survey⁸. Ten static bat detectors were deployed within the redline boundary for the Proposed Development at proposed turbine locations. The static detectors recorded bat activity for at least 10 consecutive nights during three separate activity periods of spring, summer and autumn 2022. Full results from the activity surveys will be presented in the EIAR and Bat Technical Appendix.

Numerous field signs for otter and water vole were recorded on multiple watercourses within the ecology survey area, and many of the watercourses provided suitable habitat for both species. Full results and interpretation will be presented in the EIAR for the Proposed Development.

The otter and water vole survey area and bat static detector locations are shown in Figure 6 – Appendix A.

Table 6.5.2: Ecological Surveys Completed for the Proposed Development

Ecological Receptor	Survey Date	Survey Area
Bat activity surveys (ground-level static detectors)	May & June 2022, July & August 2022, October 2022	Proposed turbine locations within the redline boundary
Otter & water vole	October 2022	Redline boundary

The following field surveys will be undertaken to support the Proposed Development:

- Phase 1 habitat and National Vegetation Classification (NVC): All habitats and NVC communities within the ecology study area will be mapped and classified. These surveys will follow standard methodology and guidelines (Section 1.1.4.2). Target notes will be recorded to describe habitat features, provide species lists and identify other noteworthy features of these habitats. The results will also be used to identify the potential presence of groundwater dependent terrestrial ecosystems.
- Bat roost and habitat assessment: An assessment of foraging and commuting habitat for bats within the ecology study area and an assessment of roost potential in suitable area or structures (e.g., trees, buildings, bridges). These surveys will identify areas that require further investigation.
- Terrestrial protected species survey: A survey to search for signs or observations of protected terrestrial species such as badgers, pine marten, red squirrel, wildcat *Felis silvestris*, and reptiles. Field surveys will involve searching for field signs such as burrows or dens, prints, hairs, feeding signs, droppings, paths through vegetation and observations of the animals themselves. The results of this survey will identify whether further targeted surveys are necessary.
- Fish and FWPM: A habitat assessment for fish species of conservation interest (e.g., Atlantic salmon *Salmo salar*, brown/sea trout *S. trutta*, European eel *Anguilla anguilla* and lamprey species) and freshwater pearl mussel *Margaritifera margaritifera*. The surveys will describe habitat conditions and assess the potential to support populations of protected species. The surveys will indicate whether further investigation (e.g., targeted FWPM presence surveys, electrofishing surveys) is required.

⁸ RPS (2020). Barachander, Argyll: Ecological Constraints Appraisal.

6.5.4 Proposed Assessment Methodology

6.5.4.1 Relevant Policy, Legislation and Guidance

All field surveys and impact assessments will be completed following relevant policy, legislation and guidance.

Legislation:

- Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) (the Habitats Directive);
- Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) (the 'Habitats Regulations');
- The Wildlife and Countryside Act 1981 (as amended);
- The Nature Conservation (Scotland) Act 2004;
- The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017;
- The Wildlife and Natural Environment (Scotland) Act 2011; and
- The Protection of Badgers Act 1992;

Policies:

- Scottish National Planning Framework 4;
- Scottish Planning Policy (now superseded by NPF4);
- Scottish Biodiversity List; and
- Argyll and Bute Local Biodiversity Action Plan;

Guidance:

- Andrews (2010). The Classification of Badger *Meles meles* Setts in the UK: A Review and Guidance for Surveyors. Marine Scotland Science (2021). Freshwater and diadromous fish and fisheries associated with onshore wind farm and transmission line developments: generic scoping guidelines;
- Bang, P. and Dahlstrøm, P (2001). Animal tracks and signs. Oxford University Press, Oxford;
- Chanin P (2003). Monitoring the Otter *Lutra lutra*. Conserving Natura 2000 Rivers Monitoring Series No.10, English Nature, Peterborough;
- CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine;
- Collins J (ed.) (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London;
- Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). The Water Vole Mitigation handbook (The Mammal Society Mitigation Guidance Series). Eds Fiona Mathews and Paul Chanin. The Mammal Society, London;
- European Commission (2021). Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC. European Commission Notice Brussels C(2021) 6913 final
- Hendry, K. and Cragg-Hine, D. (1997). Restoration of riverine salmon habitats. A guidance manual;
- Joint Nature Conservation Committee (2010). Handbook for Phase 1 habitat survey. A technique for environmental audit;
- Marine Scotland (2021b). Freshwater and diadromous fish and fisheries associated with onshore wind farm and transmission line developments: generic scoping guidelines;

- Marine Scotland (2021b). Monitoring watercourses in relation to onshore wind farm developments: generic monitoring programme;
- NatureScot (2021). Bats and onshore wind turbines – survey, assessment and mitigation;
- NatureScot (2023). Planning and development: standing advice and general documents;
- NatureScot (undated). Freshwater pearl mussel survey protocol for use in site-specific projects;
- Rodwell, J.S. (2006). NVC Users' Handbook, JNCC, Peterborough, ISBN 978 1 86107 574 1;
- Scottish Badgers (2018). Surveying for Badgers: Good Practice Guidelines;
- Scottish Environment Protection Agency (2017). Land Use Planning System Guidance SPEA Guidance Note 31: Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems;
- Scottish Fisheries Coordination Centre protocol (2014). Scottish Fisheries Co-ordination Centre Electrofishing Team Leader Training manual. Inverness College. June 2007;
- Scottish Renewables and others (2019). Good Practice during Wind Farm Construction. Version 4. A joint publication by Scottish Renewables, Scottish Natural Heritage, Scottish Environment Protection Agency, Forestry Commission Scotland, Historic Environment Scotland, Marine Scotland Science and the Association for Environmental and Ecological Clerks of Works; and
- Strachan R, Moorhouse T and Gelling M (2011). Water Vole Conservation Handbook 3rd edition. Wild CRU, Oxford.

6.5.4.2 Potential Effects

Potential impacts of the Proposed Development on non-avian ecological features include:

- Temporary and permanent loss of important habitats;
- Temporary and permanent loss of supporting habitat for protected and notable species;
- Degradation of habitats through inputs of pollutants (chemical and fine sediment);
- Change of habitats;
- Habitat fragmentation and barrier effects;
- Changes in flow types in watercourses;
- Disturbance during construction, operation and decommissioning; and
- Injury and/or mortality (e.g., collision with turbine blades, barotrauma).

The EIAR will consider any potential direct or indirect impact to habitats, designates sites and non-avian ecology features. The likelihood of those impacts occurring will also be considered and mitigation measures will be put in place to minimise the impact.

6.5.4.3 Assessment of Effects

The assessment of impacts of the Proposed Development on non-avian ecological receptors will be undertaken in line with CIEEM's Guidelines for Ecological Impact Assessment⁹. In line with the CIEEM guidance, the purpose of EclA is to assess the impact on features most likely affected by the Proposed

⁹ CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine.

Development, termed Important Ecological Features (IEFs), as opposed to all features potentially affected. IEFs are identified based on baseline information and are either legally protected or considered to be of sufficient value to be considered in the EclA.

An assessment of all ecology features will be undertaken to identify which ones may be impacted by the Proposed Development and should therefore be taken forward through impact assessment. These Important Ecology Features (IEFs) will be subject to detailed assessment of all likely impacts of the Proposed Development, which will take into consideration the Conservation Value of the IEF, with respect to the Proposed Development, and the magnitude of each impact in determining the significance of the effect (Table 6.5.3).

Table 6.5.3: Assessment of Significance Matrix

Conservation Value	Magnitude of Impact			
	Negligible	Low	Medium	High
Local	Negligible	Negligible or minor	Negligible or minor	Minor
Regional	Negligible or minor	Negligible or minor	Minor	Minor or moderate
National	Negligible or minor	Minor	Moderate	Moderate or major
International	Minor	Minor or moderate	Moderate or major	Major

6.5.4.4 Cumulative Effects

In line with CIEEM guidelines, the EclA will consider the cumulative impact of the Proposed Development in combination with other plans and projects. The projects to be considered cumulatively with the Proposed Development are:

- Beinn Ghlas Wind Farm; and
- Carraig Gheal Wind Farm.

6.5.4.5 Potential Mitigation

Mitigation for the Proposed Development will be developed based on the design of the wind farm and its supporting infrastructure and based on the findings of the desk and field based assessments. During the design of the Proposed Development and the EIA process, mitigation measures will follow the established hierarchy of avoidance, reduction, enhancement and compensation.

Mitigation During Design

It is expected that the design of the Proposed Development will be an iterative process which will consider all constraints and seek to avoid or minimise impacts on them. The design will seek to avoid habitats of the highest ecological importance and sensitivity and any critical habitat for protected and notable species.

It is recognised that although much of the Proposed Development area was previously open habitat, many areas have now been afforested. Impacts on bat species will acknowledge the future habitats on the site when designing turbines such that a sufficient buffer distance is applied between blade tips and forest edges.

Construction & Decommissioning Mitigation

Standard mitigation measures during the construction and decommissioning of a wind farm will be applied as well as measures that take into account the specific ecological sensitivities for the Proposed Development. An Outline Construction Environment Management Plan (OCEMP) will be developed which will outline these measures. This will be developed under the guidance of a suitably qualified ecologist.

Operation Mitigation

All areas temporarily impacted during construction will be reinstated. Operational mitigation will be determined based on the outcome of the field surveys and will be outlined in the EIAR.

Within the EIAR and its supporting documents, detailed proposals for habitat management during the operation of the Proposed Development will be provided. This will include an identification and description of sensitive habitats within the Proposed Development and plans for reinstatement, recover and/or enhancement of these habitats. This will take into consideration the current afforestation plans and completed work and will be developed in consultation with relevant stakeholders.

6.5.5 Scope of Assessment

Based on desk-based assessments and initial surveys, the following ecological features are expected to be scoped into the EclA:

- Designated sites;
- Habitats;
- Otter;
- Water vole;
- Bat species;
- Badger;
- Pine marten;
- Red squirrel;
- Wildcat;
- Reptiles;
- Fish; and
- Freshwater pearl mussel.

Following further surveys for the aforementioned features, some may be scoped out of the final EclA chapter, for example if the ecology survey area is found to provide no suitable habitat for the species. Any such determination will be fully explained in the EIAR and its technical appendices.

6.5.5.1 Matters to be Scoped Out

Based on initial desk-based assessments and field surveys, the following ecological features are scoped out of the EclA:

Great crested newt *Triturus cristatus* and other amphibians: the Proposed Development is located in an area of Scotland considered to be unsuitable for great crested newts. Standing waterbodies are present within the Proposed Development boundary but it is anticipated that any built elements of the Proposed Development will maintain a buffer around these waterbodies and that standard pollution prevention measures outlined in the EIAR and construction methodology documents will minimise the risk of degradation.

Beaver *Castor fibre*: No field signs for beavers were recorded during field surveys for otter and water vole, which occupy similar habitats to beavers. Watercourses and standing waterbodies with the potential to support beaver populations are present within the Proposed Development boundary but it is anticipated that any built elements of the Proposed Development will maintain a buffer around watercourses and waterbodies and that standard pollution prevention measures outlined in the EIAR and construction methodology documents will minimise the risk of degradation.

Common, widespread and/or low conservation value species: These include species not included in any statutory or non-statutory lists of species with conservation concern (e.g., not included in the SBL, not identified on the LBAP).

Habitats more than 250m away from the works: Give their distance away from the works, it is considered unlikely that the Proposed Development will result in direct or indirect impacts on such habitats, although a full assessment will be undertaken during the EIA and some habitats may be included (e.g., watercourses more than 250m downstream of the works with a direct fluvial connection).

Following the field surveys, the above features may be scoped into the assessment, if it is determined that they should be considered IEFs.

6.5.6 Scoping Questions to Consultees

- Do you agree with the data sources and field surveys which are suggested for the assessment of all ecological receptors?
- Do you agree that all sensitive receptors have been identified for ecology?
- Is the scope of the proposed assessment, including proposed study areas, appropriate?
- Do you agree with the proposed approach to the ecological impact assessment?

6.6 Chapter 6 - Ornithology

6.6.1 Introduction

This section of the Scoping Report considers the potential ornithological impacts of the Proposed Development arising during construction, operation, maintenance and decommissioning.

This section describes the work being undertaken to determine the baseline bird activity at the Proposed Development through a combination of consultation, desk study and fieldwork.

This Chapter of the EIAR will be accompanied by Technical Appendix collectively which will detail full desk study, field survey and collision risk modelling results.

This section contains the following content to introduce the ornithological context of the Proposed Development and sets out the approach to data collection and impact assessment:

- Information on the consultation process;
- Consideration of designated sites and other ornithological receptors;
- The Argyll West and Islands Natural Heritage Future Zone (NHFZ) No. 14 is described to present the Proposed Development within the NHFZ context;
- The study area and proposed desk study sources; whilst
- The assessment methodology is presented summarising legislation, policy and guidance, the study area, desk study, assessment method, methodology for assessing effects on ornithological features and cumulative effects.

6.6.1.1 Consultation

Consultation with NatureScot and the Royal Society for the Protection of Birds (RSPB) as well as other relevant organisations will take place in 2023. Any confidential ornithological receptors will be mapped, reported on and discussed directly in meetings with these key consultees. The consultation will continue throughout the duration of the EIA to ensure that any potential impacts are addressed.

6.6.1.2 Designated Sites

There are no statutory sites designated for ornithological interest that overlap with the Proposed Development. One statutory site lies within 20km of the proposed wind farm¹⁰: this is the Glen Etive and Glen Fyne SPA which is situated 2.9km east (Figure 7, Appendix A). The SPA qualifies under Article 4.1 by regularly supporting a population of European importance of the Annex I species golden eagle (19 active territories in 2003, more than 4.2% of the GB population). The SPA was last assessed in July 2015 and was considered to be in a favourable maintained condition.

In accordance with guidance (Scottish Natural Heritage (SNH) 2016)¹¹, there is some potential for connectivity between the Proposed Development and the Glen Etive and Glen Fyne SPA for the qualifying feature golden eagle (6km core foraging range during the breeding season¹¹). The SPA will therefore be scoped into the EIA as a potential receptor.

6.6.1.3 Argyll West and Islands NHFZ No. 14

The Proposed Development sits within the Argyll West and Islands NHFZ No. 14 (Figure 7 – Appendix A). Populations of key species at the NHFZ level have been determined by NatureScot and the assessment of ornithological effects will therefore be assessed at the NHFZ (i.e. regional) level, as well as at national and local scales.

6.6.2 Study Area

The ornithology study area comprises several boundaries which have been used to determine the baseline bird activity at the Proposed Development. All ornithology study areas have been developed on the basis of established guidance:

- Designated sites: Proposed Development plus 20km buffer¹¹ (Figure 7, Appendix A).
- Collision risk modelling: the results from the flight activity survey will be used to inform collision risk modelling. A line was drawn around the outermost proposed turbines to produce the turbine envelope, this area was then buffered by 500m¹² (Figure 8, Appendix A).
- Breeding raptors: Proposed Development plus 2km buffer^{13, 14} (Figure 8, Appendix A).

¹⁰ <https://sitelink.nature.scot/home>

¹¹ SNH. 2016. Assessing Connectivity with Special Protection Areas (SPAs). Available from [Assessing connectivity with special protection areas.pdf \(nature.scot\)](#)

¹² Scottish Natural Heritage. 2017. Recommended bird survey methods to inform impact assessment of onshore wind farms. Version 2.

¹³ Gilbert, C., Gibbons, D. W. and Evans, J. 1998. Bird Monitoring Methods. RSPB, Bedfordshire.

¹⁴ Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. and Thompson, D. 2013. Raptors: A Field Guide to Survey and Monitoring. The Stationery Office, Edinburgh.

- Black grouse: Proposed Development plus 1.5km buffer¹³ (Figure 8, Appendix A).
- Moorland breeding birds: Proposed Development plus 500m buffer^{15, 16} (Figure 8, Appendix A).
- Breeding divers: Proposed Development plus 2km buffer¹³ (Figure 8, Appendix A).
- Cumulative assessment: this will be carried out at a local and NHFZ scale, appropriate for species of national interest¹⁷ (Figure 7, Appendix A).

6.6.3 Baseline Environment

6.6.3.1 Desk Study

The following data sources will be sought as part of the assessment:

- Argyll Raptor Study Group (ARSG) – provision of historic raptor data;
- RSPB Scotland – provision of historic black grouse lek data;
- NatureScot SiteLink for information on designated sites¹⁰;
- Any other relevant EIA reports or technical reports from other developments or Proposed Developments in the local area; and
- Relevant peer-reviewed papers on important ornithological features, including in relation to wind farm development effects.

6.6.3.2 Field Survey Results

It is intended that full results, including collision risk modelling, will be presented in the EIAR and technical appendices. This data will also be discussed directly with NatureScot during the Scoping process.

6.6.4 Proposed Assessment Methodology

6.6.4.1 Relevant Policy, Legislation and Guidance

The assessment will be undertaken following relevant European and national legislation, policy and guidance.

European legislation, policy and guidance:

- Directive 2009/147/EC on the Conservation of Wild Birds (The Birds Directive).
- Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) (the Habitats Directive).
- Environmental Impact Assessment Directive 2014/52/EU.
- European Commission (2010) Natura 2000 Guidance Document 'Wind Energy Developments and Natura 2000'. European Commission, Brussels.

National legislation, policy and guidance:

¹⁵ Brown, A. F. and Shepherd, K. B. 1993. A Method for Censusing Upland Breeding Waders. *Bird Study* 40: 189-195.

¹⁶ Calladine, J., Garner, G., Wernham, C. and Thiel, A. 2009. The influence of survey frequency on population estimates of moorland breeding birds. *Bird Study*. 56: 381-388.

¹⁷ SNH. 2018. Guidance – Assessing the cumulative impacts of onshore wind farms on birds.

- The Wildlife and Countryside Act (WCA) 1981 (as amended).
- The Nature Conservation (Scotland) Act 2004 (as amended).
- Circular 1/2017; The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017.
- Policy Advice Note PAN 1/2013 – Environmental Impact Assessment (Scottish Government 2013).

Other guidance:

- SNH. 2000. Windfarms and birds: calculating a theoretical collision risk assuming no avoidance action. SNH Guidance Note. SNH.
- SNH. 2016. Environmental Statements and Annexes of Environmentally Sensitive Bird Information. Guidance for Developers, Consultants and Consultees. Version 2.
- SNH. 2016. Guidance – Assessing Connectivity with Special Protection Areas (SPAs). Version 3.
- SNH. 2017. Recommended bird survey methods to inform impact assessment of onshore wind farms. Version 2.
- CIEEM. 2018. Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.
- SNH 2018a. Guidance – Assessing Significance of Impacts from Onshore Wind Farms Outwith Designated Areas. Version 2.
- SNH. 2018b. Guidance – Assessing the cumulative impacts of onshore wind farms on birds.
- SNH. 2018c. Environmental Impact Assessment Handbook – Version 5: Guidance for competent authorities, consultation bodies, and other involved in the Environmental Impact Assessment process in Scotland.
- SNH. 2018d. Avoidance Rates for the Onshore SNH Wind Farm Collision Risk Model. Version 2.
- SNH. 2019. Guidance – Good Practice During Wind Farm Construction. 4th Edition.
- Stanbury, A. J., Eaton, M. A., Aebischer, N. J., Balmer, D., Brown, A. F., Douse, A., Lindley, P., McCulloch, N., Noble, D. G. and Win, I. 2021. Birds of Conservation Concern 5. British Birds Volume 114.
- The Scottish Biodiversity List¹⁸.

6.6.4.2 Assessment of Effects

The ways in which birds may be affected (directly or indirectly) by the construction, operation, maintenance and decommissioning of the Proposed Development are:

- Direct habitat loss through construction of the Proposed Development (e.g. turbine bases, tracks, etc);
- Indirect habitat loss due to birds avoiding the Proposed Development and its surrounding area. This may occur because of disturbance during construction, operation, maintenance and decommissioning and also due to increased visitor disturbance;

¹⁸ <https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy-and-cop15/scottish-biodiversity-list>

- Habitat modification due to associated changes in land cover (e.g. tree felling or effects on hydrology leading to altered suitability for foraging, breeding, etc);
- Barrier effects in which birds avoid the Proposed Development and are therefore forced to take alternative routes to feeding or roosting grounds;
- Death or injury through collision with turbine blades, overhead wires (if any), met masts, or fences (if any) associated with the Proposed Development;
- Any of the above effects acting cumulatively with those from other wind farm plans and projects (i.e. operational or consented developments and those currently in the planning process).

The EIA will consider any potential direct, indirect or cumulative Effects of the construction, operation and decommissioning of the Proposed Development on both ornithology and statutory designated sites. The assessment will also consider the Likelihood of these effects occurring.

Reference will also be made to the Proposed Development’s habitat characteristics and land use. These include a recently planted conifer plantation with associated broadleaf woodland planting and open space (FGS Reference no. **20FGS51263**). Prior to this, it was farmland predominantly used for sheep grazing.

An Effect is defined as a change in the assemblage of birds due to impacts caused by the Proposed Development. Where the response of a population has a varying degree of Likelihood, the probability of these differing outcomes is considered. Effects on Important Ornithological Features (IOFs) will be assessed in relation to the species’ Conservation Status and Nature Conservation Importance (NCI). The assessment of potential effects will adhere to CIEEM (2018)¹⁹ and SNH (2017¹², 2018¹⁷) guidelines, as follows:

- Identification of the potential Effects of the proposed wind farm;
- Consideration of the Likelihood of those effects occurring;
- Defining the Conservation Status and NCI of the bird populations present to determine Sensitivity;
- The importance of the site for a particular species;
- Establishing the Magnitude of the Likely Effect (both spatial and temporal);
- Based on the above information, a judgement is made as to whether the identified Effect is significant with respect to the EIA Regulations;
- If a potential Effect is determined to be significant, measures to mitigate or compensate the effect are suggested where required;
- Opportunities for enhancement are considered where appropriate; whilst
- Residual effects after mitigation, compensation or enhancement are reported.

Alongside each IOF’s Conservation Status is its NCI. The NCI is derived from the Feature’s reference population, population trend, distribution and range, to determine Sensitivity.

The significance of potential effects is then determined by integrating the Sensitivity of the IOF and the Magnitude of the Likely Effect (Table 6.6.1).

Table 6.6.1: Assessment of Significance Matrix (Complex)

Sensitivity	Magnitude of Impact
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¹⁹ CIEEM. 2018. Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.

	No Change	Negligible	Low	Medium	High
Negligible	No change	Negligible	Negligible or Minor	Negligible or Minor	Minor
Low		Negligible or Minor	Negligible or Minor	Minor	Minor or Moderate
Medium		Negligible or Minor	Minor	Moderate	Moderate or Major
High		Minor	Minor or Moderate	Moderate or Major	Major or Substantial
Very high		Minor	Moderate or Major	Major or Substantial	Substantial

6.6.4.3 Cumulative Effects

An assessment of cumulative effects will be carried out following guidance¹⁷. Cumulative effects on each Ornithological Feature relevant to the Proposed Development will be assessed in relation to the following projects: the Beinn Ghlas Wind Farm and Carraig Gheal Wind Farm.

6.6.5 Scope of Assessment

The proposed Scope of Assessment will be based on the findings of all baseline surveys as well as relevant project experience. This will be discussed directly with NatureScot and RSPB in parallel with the formal Scoping process.

6.6.5.1 Matters to be Scoped Out

These will be based on the findings of the initial desk-top consideration, any baseline field surveys and project experience.

6.6.6 Scoping Questions to Consultees

- Do you agree that the data sources identified in Section 6.6.3.1 are sufficiently comprehensive?
- Do you agree with the proposed approach that the assessment of species of national interest should be carried out at the NHFZ (i.e. regional) level as well as at national and local scales?

6.7 Chapter 7 - Hydrology & Flood Risk

This section of the Scoping Report considers the potential hydrological and flood risk impacts of the Proposed Development arising during construction, operation, and maintenance and during decommissioning including water quality and flow regimes.

This section considers baseline conditions and sets out a proposed methodology for the corresponding EIA Chapter.

6.7.1 Study Area

The hydrology and flood risk study area takes account of the site boundary (Figure 1, Appendix A) and applies:

- A 1km buffer around all proposed wind turbines and any emerging BESS facility site; and
- A 250m from any internal roads and ancillary infrastructure.

The buffers are considered appropriate for data collection taking account of the nature of the Proposed Development and likely zone of influence on hydrological receptors. Given the landscape and surrounding local land use activities, it would be difficult to ascertain the exact source of any impacts on water quality beyond 1km.

6.7.2 Baseline Data

An initial desk-based review of literature and data sources to support this Scoping Report has highlighted the following sources of baseline data which provide coverage of the Barachander site area:

- Ordnance Survey (OS) Mapping (Ordnance Survey 2023);
- BGS Geology of Britain Viewer: 1:50,000 Geological Mapping (British Geological Society 2023);
- Scottish Environment Protection Agency (SEPA) data and mapping (SEPA 2023);
- Magic Mapping (Department for Environment Food and Rural Affairs 2023);
- The Highland & Argyll Flood Risk Management Plan Final Report (2022 – 2028);
- Clyde and Loch Lomond Local Flood Risk Management Plan;

In addition to the above data, site-specific hydrological data will be obtained via consultation with the Scottish Environment Protection Agency (SEPA), Lead Local Flood Authority (LLFA), Envirocheck/Groundsure and site reconnaissance.

6.7.3 Baseline Environment

A review of published OS maps and SEPA data indicates a number of waterbodies present within the Proposed Development area and associated the 1km hydrology and flood risk study area:

- Allt Garbh (watercourse) located in the northeast of the site;
- Allt Bocain (watercourse) located southeast;
- Allt Poll an Dubhaich (watercourse) located within the northern extent of the study area buffer;
- Allt na h-Airigh (watercourse) located within the eastern extent of the study area buffer;
- Allt Mhic o' Haragain (watercourse) located within the northern extent of the study area buffer;
- Loch Tromlee located within the eastern extent of the study area buffer;
- Dubh Loch located within the eastern extent of the study area buffer;
- Loch an Droighinn located in the southwest;
- Loch an Leoid located in the southwest;
- Loch na Sguabaich located in the west of the site;
- Loch na Carraigeach located in the west of the study area;
- Loch Nant located in the west of the site (produces hydro-electric power);
- River Nant located on the western extent of the study area;

- Kilchrenan Burn located within the eastern extent of the study area buffer; and
- Unnamed tributaries running within the study area and associated buffer zone.

6.7.3.1 Fluvial and Tidal Risk

The SEPA Flood Map (SEPA, 2023) indicates that the Proposed Development is located within an area which has a large extent designated as having 'no specific risk' of fluvial flooding, whereby the annual probability of flooding is classified as less than 0.1%. However, there are some small areas with a 'high likelihood' which indicates that there is a 10% chance of flooding each year. This is associated with the lochs located onsite and the River Nant located on the northern and eastern boundary of the Proposed Development.

The SEPA Flood Map (SEPA, 2023) also indicates that the Proposed Development is located within an area which is designated as having 'no specific risk' of coastal flooding, whereby the annual probability of flooding is classified as less than 0.1%.

6.7.3.2 Surface Water Risk

The SEPA Flood Map (SEPA, 2023) indicates that pockets within the Proposed Development site are susceptible to Surface Water Flooding. The site ranges from 'no specific risk' to 'high likelihood' across the site, which corresponds with (annual probabilities of between less than 0.1%, 0.1% and 0.5%, 0.5% and 10% and greater than 10% respectively). Low to high-risk areas are localised and attributed to ordinary watercourses, Lochs or surface depressions.

6.7.4 Designated Sites

6.7.4.1 Land Based Designations

The following Designated Sites are located within the hydrology and flood risk study area:

- Glen Nant – Biological Site of Special Scientific Interest
- Loch Etive Woods - Special Areas of Conservation

Both designated sites are located upon the western boundary of the red line boundary of the site, within the hydrology and flood risk study area.

6.7.4.2 Water Framework Directive

Under the Water framework directive (WFD), hydrological features often contribute either directly or indirectly to the overall framework designation. Hydrological designations within the hydrology and flood risk study area are provided at an international and national level.

Further details on water framework directive classifications within the hydrology and flood risk study area are provided in Table 6.7.1

Table 6.7.1: Water Framework Directive Classification

River Name/Watercourse and ID	Waterbody type	Classification
Loch Nant (100250)	Loch	Good
River Nant (d/s Loch Nant) (10300)	Watercourse	Good
Kilchrenan Burn (10279)	Watercourse	Good

6.7.4.3 Additional Designations

The study area is also located within a Drinking Water Protected Area (groundwater and surface water).

6.7.5 Proposed Assessment Methodology

6.7.5.1 Relevant Policy, Legislation and Guidance

A summary of the policy legislation and guidance which will inform the assessment is as follows:

European Legislation

- The European Water Framework Directive (2000);
- Flood Directive (2007);
- Drinking Water Directive (2015);

National Legislation

- The Water Resources Act (1991);
- The Land Drainage Act (1991);
- The Environment Act (1995);
- The Water Act (2003);
- Flood Risk Regulations (2009);
- The Flood and Water Management Act (2010);
- The Water Act (2014);
- Reservoirs Act (1975);
- The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended);
- The Water Environment (Miscellaneous) (Scotland) (2017); and
- Flood Risk Management Act (Scotland) (2009).

National Policy

- National Planning Framework 4;

Local policy

- Highland & Argyll Local Flood Risk Management Plan Final Report (Cycle 1);
- The Highland & Argyll Flood Risk Management Plan Final Report (2022 – 2028);
- Clyde and Loch Lomond Local Flood Risk Management Plan;
- Argyll & Bute Council Flood Risk Management Policy (March 2015);
- Highland & Argyll Local Flood Risk Management Plan (Cycle 2);
- Argyll and Bute Local Development Plan (Adopted March 2015);

Relevant guidance

- National Highways et al (2020) Design Manual for Roads and Bridges (DMRB) LA113 Road drainage and the water environment;
- National Highways et al (2020) Design Manual for Roads and Bridges (DMRB) LA104 Environmental assessment and monitoring;

- Policy No. 19, Groundwater protection policy for Scotland (SEPA, 2009);
- WAT-SG-25, Good practice guide - river crossings (SEPA, 2010b);
- Climate Change Allowances for flood risk assessment in land use planning (SEPA, 2019);
- Development Management Guidance: Flood Risk (SEPA, 2017);
- Natural Flood Management Handbook (Scottish Environmental Protection Agency (SEPA), 2015); and
- SEPA Guidance Note 8 standing advice for planning authorities and developers on development management consultations (SEPA, 2012).

6.7.5.2 Assessment of Effects

The significance of effects will be identified by considering the magnitude and impact of the proposed development.

6.7.5.2.1 Impact Assessment Criteria

The significance of an effect is determined based on the sensitivity of a receptor and the magnitude of an impact. This section describes the criteria which will be applied in this chapter to characterise the sensitivity of receptors and magnitude of potential impacts.

The criteria for defining sensitivity in this chapter are outlined in Table 6.7.2 below:

Table 6.7.2: Sensitivity Criteria

Sensitivity	Definition
Very High	<p>Receptor with little to no capacity to accommodate change, is high value or critical importance to the local, regional or national economy. Receptor is highly vulnerable to impacts that may arise from the development and recoverability is long term or not possible.</p> <p>Surface Water: WFD current overall status of high. The surface water body supports sensitive aquatic ecological receptors and is extensively used for public water supply and large-scale agricultural use.</p> <p>Groundwater: Groundwater body supports public and/or large-scale industrial water supply and is a very high productivity aquifer.</p> <p>Flood Risk: Land is within a high-risk flood zone or nationally significant infrastructure is present which is protected from flooding by natural floodplain storage.</p>
High	<p>Receptor with a low a capacity to accommodate change, is of moderate value with reasonable contribution to the local, regional or national economy. Receptor is generally vulnerable to impacts that may arise from the development and recoverability is flow and/or costly.</p> <p>Surface Water: WFD current overall status of good. Surface water body may support sensitive aquatic ecological receptors and is used is used for public water supply / medium scale industrial or agricultural use.</p> <p>Groundwater: Groundwater body supports public water and/or large-scale industrial water supply and is a high productivity aquifer.</p> <p>Flood Risk: Land is within a high to medium risk flood zone or locally significant infrastructure is present which is protected from flooding by natural floodplain storage.</p>

Sensitivity	Definition
Medium	<p>Receptors with a moderate capacity to accommodate change, is of minor value with small levels of contribution to the local, regional and national economy. Receptor is somewhat vulnerable to impacts that may arise from the development and has moderate to high levels of recoverability.</p> <p>Surface Water: WFD current overall status of moderate. The surface water features may be locally important for spawning of salmonid species. Surface water body is used for private water supply or small scale industrial/agricultural use.</p> <p>Groundwater: Groundwater body supports private water supply or medium scale agricultural/industrial abstractions.</p> <p>Flood Risk: Land is within a medium risk flood zones or limited constraints and a low probability of flooding of industrial properties.</p>
Low	<p>Receptor with a high capacity to accommodate change, is of low value with little contribution to the local, regional or national economy. Receptor is not generally vulnerable to impacts that may arise from the development and/or has high recoverability.</p> <p>Surface Water: WFD current overall status of poor. Surface water bodies are not significant in terms of sensitive ecological receptors or fish spawning. Small scale (single residential or commercial use) abstraction licences are present in close proximity.</p> <p>Groundwater: Low or very low productivity aquifer with no abstraction licences.</p> <p>Flood Risk: Land within a low-risk flood zone or limited constraints and a very low probability of flooding of industrial properties.</p>
Negligible	<p>Receptor with a very high capacity to accommodate change, is of negligible value with no contribution to local, regional or national economy. Receptor is not vulnerable to impacts that may arise from the development and/or has high recoverability.</p> <p>Surface Water: WFD current overall status of bad. No sensitive ecological receptors or fish spawning are present within the surface water bodies. No abstraction licences present within the area.</p> <p>Groundwater: Very low productivity aquifer with no abstraction licences.</p> <p>Flood Risk: Land is within a little to no flood risk zone and no major flood risk areas are present within a 250 m radius of the site.</p>

6.7.5.2.2 Magnitude of Impact

In determining impact magnitude, the impact duration and the nature of the impact has been taken into account. The following definitions from the DMRB (LA104 and LA113) have been used in the assessment.

- Temporal scale.
 - Short Term: A period of months, up to one year.
 - Medium Term: A period of more than one year, up to five years.
 - Long Term: A period of greater than five years.
- Geographical scale - whether the effect would be experienced at the local, regional or national level.
- Adverse or Beneficial – whether the nature of the effect increases or decreases potential contamination risks to sensitive receptors.

- Temporary – effects that persist for a limited period only (due for example, to particular activities taking place for a short period of time).
- Permanent – effects that result from an irreversible change to the baseline environment (e.g., land-take) or which persist for the foreseeable future.
- Reversible/irreversible effect: effects can be reversed by mitigation measures or by natural environmental recovery within reasonable timescales (e.g. 5 to 10 years following cessation of construction).
- Direct – effects that arise from the impact of activities that form an integral part of the Project (e.g. direct employment and income generation).
- Indirect – effects that arise from the impact of activities that do not explicitly form part of the Project.

The criteria for defining magnitude in this chapter are outlined in Table 6.7.3 below.

Table 6.7.3: Impact Magnitude Criteria

Magnitude of impact		1. Definition
High	Adverse	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements.
	Beneficial	Large scale or major improvement or resource quality; extensive restoration or enhancement; major improvement of attribute quality.
Medium	Adverse	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements.
	Beneficial	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality.
Low	Adverse	Some measurable change in attributes, quality or vulnerability, minor loss or, or alteration to, one (maybe more) key characteristics, features or elements.
	Beneficial	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring.
Negligible	Adverse	Very minor loss or detrimental alteration to one or more characteristics, features or elements.
	Beneficial	Very minor benefit to, or positive addition of one or more characteristics, features or elements.
No change		No loss or alteration of characteristics, features or elements; no observable impact in either direction.

6.7.5.2.3 Significance of Effect

The significance of the effect upon hydrology and flood risk will be determined by taking into account the sensitivity of the receptor and the magnitude of the impact. The method employed for this assessment is presented in Table 6.7.4. Where a range of significance levels is presented, the final assessment for each effect is based upon professional judgement.

In all cases, the evaluation of receptor sensitivity, impact magnitude and significance of effect has been informed by professional judgement and is underpinned by narrative to explain the conclusions reached.

Table 6.7.4: Significance of Effect Assessment Matrix

SENSITIVITY OF RECEPTOR	Magnitude of Impact			
	Negligible	Low	Medium	High
Negligible	Negligible	Negligible or Minor	Negligible or Minor	Minor
Low	Negligible or Minor	Negligible or Minor	Minor	Minor or Moderate
Medium	Negligible or Minor	Minor	Moderate	Moderate or Major
High	Minor	Minor or Moderate	Moderate or Major	Major
Very High	Minor	Moderate or Major	Major	Major

Where the magnitude of impact is 'no change', no effect would arise.

The definitions for significance of effect levels are described as follows.

- **Major:** These beneficial or adverse effects are considered to be very important considerations and are likely to be material 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. Effects upon human receptors may also be attributed this level of significance.
- **Moderate:** These beneficial or adverse effects have the potential to be important and may influence the key decision-making process. The cumulative effects of such factors may influence decision-making if they lead to an increase in the overall adverse or beneficial effect on a particular resource or receptor.
- **Minor:** These beneficial or adverse effects are generally, but not exclusively, raised as local factors. They are unlikely to be critical in the decision-making process but are important in enhancing the subsequent 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.

The projects to be considered cumulatively with the Proposed Development in terms of hydrology and flood risk are:

- Beinn Ghlas Wind Farm; and
- Carraig Gheal Wind Farm.

6.7.6 Scope of Assessment

The proposed Scope of Assessment is based on preliminary findings and relevant project experience.

A range of likely effects on hydrology and flood risk have been identified which may occur during the construction, operation and maintenance, and decommissioning phases of the development of Barachander Wind Farm.

The vast majority of potential effects have been scoped out, as it is considered that identified potential effects will be adequately addressed with a supporting Flood Risk Assessment. Details of the potential project effects and where they are to be addressed are presented in Table 6.7.5.

Table 6.7.5: Potential Project effects

Effect No.	Effect	Justification	Data Collection and analysis required to characterise the baseline environment
<i>Construction</i>			
1	Potential increase to flood risk	The construction could directly impact flood risk on adjoining land.	A desk based study of the flood risk will be undertaken within the supporting Flood Risk Assessment.
2	Potential to increase temporary flood risk.	Impacts in flood risk could arise from any change in run-off areas affected during construction compound and temporary areas.	A desk based study of the flood risk will be undertaken within the supporting Flood Risk Assessment.
3	Deterioration of water quality of watercourses and waterbodies.	Direct impacts to water quality may occur from construction works in close proximity to watercourses.	A review of the SEPA catchment data explorer to identify the WFD classification of watercourses on or within 1km within the sites. Consultation with Council to confirm any surrounding Private Water Supplies. To be captured within the supporting Flood Risk Assessment.
<i>Operation and Maintenance</i>			
4	Deterioration of water quality of watercourses	Indirect impacts may occur as a result of leakage of stored materials or spilled materials used during operation and maintenance.	A desk-based study of WFD watercourses in particular, the chemical and biological objectives set by the WFD. To be captured within the supporting Flood Risk Assessment
5	Potential increase in flood risk	A desk based study of the flood risk area within the site, and potential impacts to offsite assets and land.	A desk-based study of the flood risk will be undertaken within the Flood Risk Assessment.
<i>Decommissioning</i>			

6	Potential increase to flood risk	The decommissioning could directly impact flood risk on adjoining land.	A desk based study of the flood risk will be undertaken within the Flood Risk Assessment.
7	Potential to increase temporary flood risk.	Impacts in flood risk could arise from any change in run-off areas affected during decommissioning of compounds and temporary areas.	A desk based study of the flood risk will be undertaken within the Flood Risk Assessment.
8	Deterioration of water quality of watercourses	Direct impacts to water quality may occur from workings associated to the removal of the turbines and associated infrastructure.	A desk-based study of watercourses in particular, the chemical and biological objectives set by the WFD. To be captured within the supporting Flood Risk Assessment

6.7.6.1 Matters to be Scoped Out

It is proposed that matters other than those listed in Table 6.7.5 will be excluded from the assessment.

6.7.7 Scoping Questions to Consultees

- Do you agree with the data sources which are suggested for the assessment of hydrology and flood risk?
- Do you agree with the proposed approach and scope of the assessment of hydrology and flood risk?

6.8 Chapter 8 – Geology & Soils (Including Peat)

6.8.1 Introduction

This section of the Scoping Report considers the potential impacts of the Proposed Development on geology and soils arising during construction, operation and maintenance and during decommissioning.

The geology and soils EIA chapter will assess the potential impacts of the Proposed Development on geological resources. This includes detailed consideration of potential impacts on the local geology in and around the site. Hydrology and hydrogeology will be assessed separately. Potential impacts on peat deposits, and potential risks associated with peat slide, will also be assessed as required. The impacts of any potentially contaminated land will also be assessed as required. Mitigation measures to avoid or reduce potential impacts will also be identified and any residual effects will also be assessed.

6.8.2 Study Area

The site is in the Lorn District of North Argyll and the Option Plan (V02) indicates that the site area (red line boundary) is circa 796 hectares (ha). Loch Nant is present at the extreme western boundary of the site, while the B845 road forms most of the eastern boundary of the site. The surrounding land is largely occupied by forests / plantations.

The proposed wind farm development (Proposed Development) will likely comprise 11 turbines, ancillary infrastructure and an associated BESS facility. The wind farm will be located within the red line area.

The study area for the purposes of the geology and soils assessment is likely to comprise that illustrated in Figure 6.3 below (also included as Figure 9, Appendix A), comprising that which has been subjected to peat probing during baseline assessments. The study area incapsulates a 100m buffer for the purposes of considering potentially adjacent contaminated land which could impact the Proposed Development.

6.8.3 Baseline Environment

Phase 1 peat probing was undertaken in November 2022 and January 2021 across the peat probing survey area shown in Figure 6.3 with a view to informing the scoping report. The SNH Carbon and Peatland 2016 map shows the presence of peat across most of the geology and soils study area (i.e. within the red line boundary).

Phase 1 peat probing was therefore undertaken to investigate and establish the possible presence and depth of peat across an area covering approximately 500 ha within which the emerging wind farm is likely to be located and within which the Scoping Layout is situated.

The Phase 1 peat probing was undertaken at an approximate 100m grid in general accordance with the Scottish Government, Scottish Natural Heritage, SEPA (2017) Peatland Survey. *Guidance on Developments on Peatland*. As stated, the findings are presented in Figure 6.3 below.

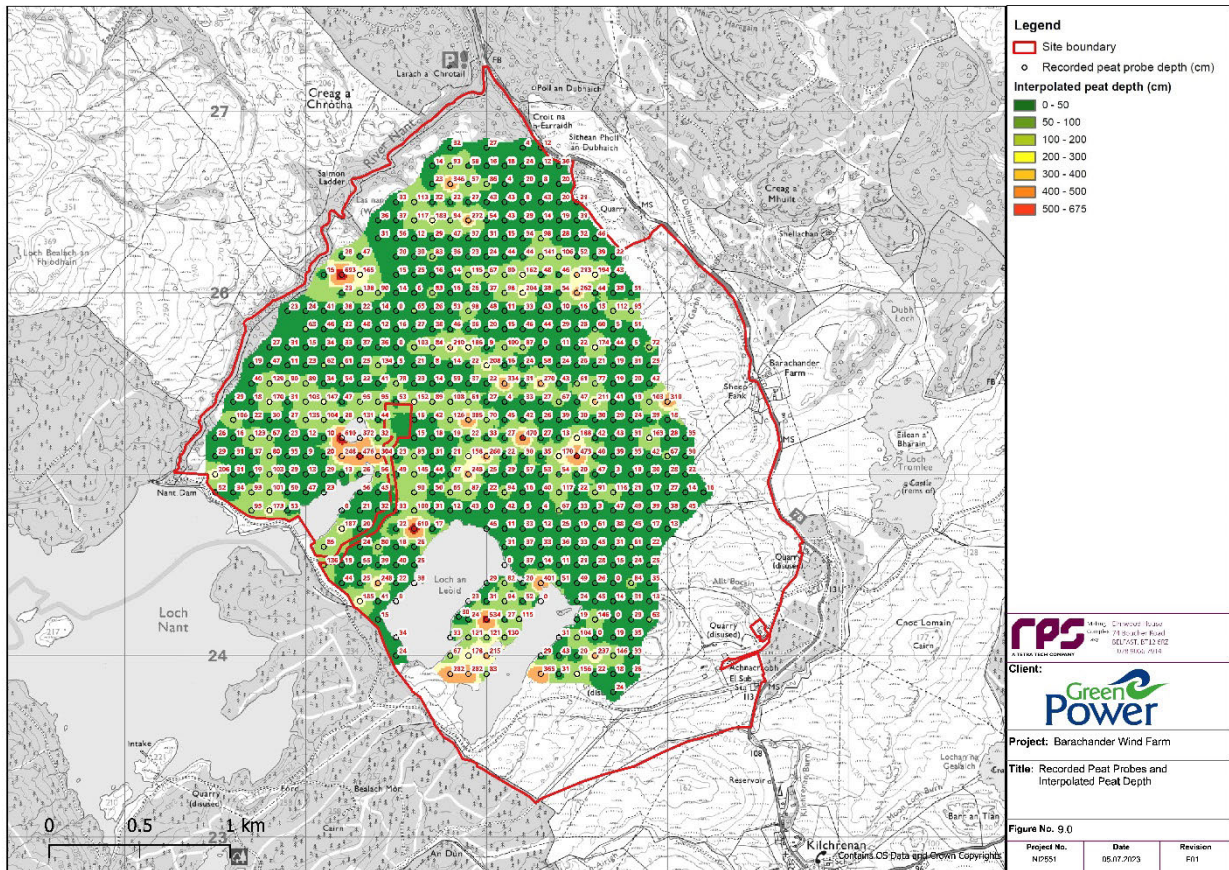


Figure 6.3: Recorded Peat Probes and Interpolated Peat Depth

As can be seen there are localised pockets of deep (>1m) peat which require to be avoided (where possible) by infrastructure in accordance with the above referenced *Guidance on Developments on Peatland*.

This is the only on-site geology and soils survey completed to date.

6.8.4 Proposed Assessment Methodology

6.8.4.1 Relevant Policy, Legislation and Guidance

The key sources of guidance and legislation relating to geology and soils (including peat) are outlined below:

- Scottish Government, SNH, SEPA (2017). Guidance on Developments on Peatland;
- Energy Consents Unit Scottish Government (2017). Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments. Second Edition;
- Scottish Renewables, SEPA (2014). Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste;
- SEPA (2010). SEPA Regulatory Position Statement - Developments on Peat;
- SEPA (2017). SEPA Regulatory Position Statement - Developments on Peat and Off-site Uses of Waste Peat. WST-G-052. Version 1;
- Scottish Renewables, Scottish Natural Heritage, SEPA, Forestry Commission Scotland, Historic Environment Scotland, Marine Scotland Science, AECoW (2019). Good Practice During Wind Farm Construction. 4th Edition;
- Scottish Natural Heritage, Forestry Commission Scotland (2010). Floating Roads on Peat: A report into Good Practice in Design, Construction and Use of Floating Roads on Peat with Particular Reference to Wind Farm Developments in Scotland;
- Scottish Executive (2005). Scottish Roads Network Landslides Study Summary Report;
- Forestry Commission (2006). Guidelines for Risk Management of Peat Slips on the Construction of Low Volume/Low Cost Roads on Peat;
- Scottish Natural Heritage (2015). Constructed Tracks in the Scottish Uplands;
- SEPA, EnviroCentre (2011). Restoration Techniques Using Peat Spoil from Construction Works; A summary of the policy legislation and guidance which will inform the Assessment.
- CIRIA (1997). Ground Engineering Spoil: Good Management Practice. CIRIA report 179;
- NetRegs. Guidance for Pollution Prevention (GPP) – Various;
- CIRIA (2015). Environmental Good Practice on site. CIRIA C741;
- Institution of Civil Engineers (2001). Managing Geotechnical Risk: Improving Productivity in UK Building and Construction;
- Scottish Government (2014). Scottish Planning Policy (SPP);
- SEPA (2017). Land Use Planning System SEPA Guidance Note 4: Planning Guidance on On-shore Windfarm Developments;
- CIRIA (2002). Construction over Abandoned Mine Workings. Special Publication 32;
- The Coal Authority (2012). Risk Based Approach to Development Management, Resources for Developers.
- Contaminated Land (Scotland) Regulations 2005 (as amended);
- DEFRA Environmental Protection Act 1990: Part 2A - Contaminated Land Statutory Guidance (2012);
- Land Contamination Risk Management (LCRM), Environment Agency, 2020; and
- National Planning Framework 4 (Scotland).

6.8.4.2 Assessment of Effects

The potential geology and soils effects associated with construction and operation of the Proposed Development are anticipated to include:

- Excavation, localised compaction and/or dewatering of peat;
- Impacts on environmental and human receptors from peat slide risk.

The desk study (to be undertaken post scoping) may also identify potential geology and soils impacts associated with geological designations, mineral safeguarding and contaminated land.

All impacts will be assessed to determine potential magnitude, to establish the potential significance of effect. It is considered likely that significant effects can be avoided through standard embedded mitigation, including appropriate site design.

Following the assessment of effects, required mitigation will be identified and any subsequent residual effects will be assessed.

The Proposed Development will undergo design iterations and evolution in response to constraints identified as part of the baseline studies and field studies to avoid and/or minimise potential effects on receptors where possible.

This will include geological and soils constraints which include slope stability and deep peat.

For example, it is expected that the following potential mitigation measures may be included in the design of the Proposed Development:

- Further site specific and phased peat probing to confirm areas of potential deep peat ensuring they will be avoided where possible;
- A site specific peat landslide hazard and risk assessment (PLHRA) will be prepared and areas of potential increased peat slide risk will be avoided or mitigated through engineering controls; and
- If required, a peat management plan will be prepared to show how the integrity of peat will be safeguarded.

Most or all potentially significant effects are anticipated to be mitigable through standard embedded mitigation measures including suitable site design (taking the findings of the above studies and surveys into account) and appropriate construction methods to be set out in the Construction Environmental Management Plan (CEMP), an outline version of which will be appended to Chapter 2 of the EIAR. Where additional site-specific mitigation is required, this will be clearly set out in the EIAR and will be subject of ongoing consultation with relevant regulators and stakeholders.

A qualitative risk assessment methodology will be used to assess the significance of the potential effects. Two factors will be considered: the sensitivity of the receiving environment and the potential magnitude should that potential impact occur.

This approach provides a mechanism for identifying the areas where mitigation measures are required, and for identifying mitigation measures appropriate to the risk presented by the Proposed Development. This approach also allows effort to be focussed on reducing risk where the greatest benefit may result.

The sensitivity of the receiving environment (i.e. the baseline quality of the receiving environment as well as its ability to absorb effects without perceptible change) and the magnitude of impacts will each be considered through a set of pre-defined criteria.

The sensitivity of the receiving environment together with the magnitude of the effects defines the significance of the effect, which will be categorised into level of significance.

6.8.5 Scope of Assessment

The potential effects from the Proposed Development on geology and soils will be assessed by completing a desk study (including consultation), further targeted field investigation and an impact assessment, the process of which is summarised below.

6.8.5.1 Desk Study

A desk study will be undertaken to confirm the baseline characteristic by reviewing available information relating to geology and soils to initially characterise the following:

- The depth and distribution of peat;
- The nature of the underlying geology;
- The presence of any geological designations/mineral safeguarding rights; and
- Potentially contaminative current or historic land uses.

The baseline assessment will include review of published geological maps, OS maps, aerial photographs digital terrain models (slope plans) and geological literature.

The baseline assessment will include a review of the development proposals and reports from other technical studies being undertaken for the application, particularly hydrology and hydrogeology.

The desk study will be used to develop a conceptual site model which would then be used to identify sensitive features or receptors which may potentially be affected by the Proposed Development, and which might warrant further investigation as part of the proposed field surveys.

6.8.5.2 Field Survey

A programme of site visits and surveys will be undertaken to:

- Verify the information collected during the desk study;
- Inspect rock exposures and establish by probing an estimate of overburden thickness;
- Following the design iteration resulting from the Phase 1 peat probing exercise recently undertaken, Phase 2 peat depth probing data will be collected to provide more detailed information on conditions and peat depths around proposed infrastructure and access track routes. This information will be used within various assessments to determine how peat may influence the Proposed Development. All surveys will be undertaken in accordance with current best practice;
- Record any evidence of historical and/or current peat landslide activity or indicators of instability; and
- Confirm substrate beneath areas of peat based on the type of refusal of peat depth probe.

The further surveys will be used to confirm those potential development opportunities and constraints that have fed into the Scoping Layout and will be used to further inform the site design.

Once the desk study and further field surveys are completed and sensitive geological and soil features have been identified, an impact assessment will be undertaken.

6.8.5.3 Peat Landslide Hazard and Risk Assessment

If significant peat depths are proven a preliminary PLHRA will be completed using the site survey data and slope analysis (using DTM data), highlighting areas that may be impacted by a peat slide so that appropriate mitigation measures can be identified and included in the site design.

6.8.5.4 Peat Management Plan

Should the design be unable to completely avoid areas of peat, a site-specific Stage 1 (outline) Peat Management Plan (PMP) would be prepared to assess the potential volumes of peat excavation required and identify opportunities for re-use.

6.8.5.5 Consultation

As part of the consultation phase of the project, environmental data and views on the Proposed Development may be sought from:

- SEPA;
- NatureScot;
- Argyll and Bute Council; and
- Ironside Farrar (Advisors to the Scottish Government with regard to Peat).

6.8.6 Matters to be Scoped Out

Contaminated land may be able to be scoped out following completion of the desk study given there is a low likelihood of any current or historical contaminative land uses at the site and the Proposed Development is not a sensitive receptor to contamination.

6.8.7 Scoping Questions to Consultees

- Do you agree with the data sources which are suggested for the assessment of geology and soils?
- Do you agree that all sensitive receptors and impact pathways have been identified for geology and soils?
- Do you agree with the proposed approach to the assessment of geology and soils?

6.9 Chapter 9 – Noise & Vibration

6.9.1 Introduction

This section of the Scoping Report considers the potential noise impacts of the Proposed Development on nearby noise sensitive receptors (NSRs) during the construction, operation and maintenance and during decommissioning phases. The assessment will be carried out in consultation with the Environmental Health Department of Argyll and Bute Council.

6.9.2 Study Area

The Proposed Development is in a rural area with few residential receptors within the vicinity. These are all located along the B845 to the east. There are no properties with a financial involvement with the project. Barachander farm is located to the eastern boundary of the site, as is a further property just south of this. A cluster of residential properties are also located beyond the south-eastern boundary of the site.

The residential properties identified comprise the Noise Sensitive Receptors (NSR) which will be considered within the Noise & Vibration EIA Chapter. The location of these is shown in Figure 6.4 below (Also included as Figure 10, Appendix A).

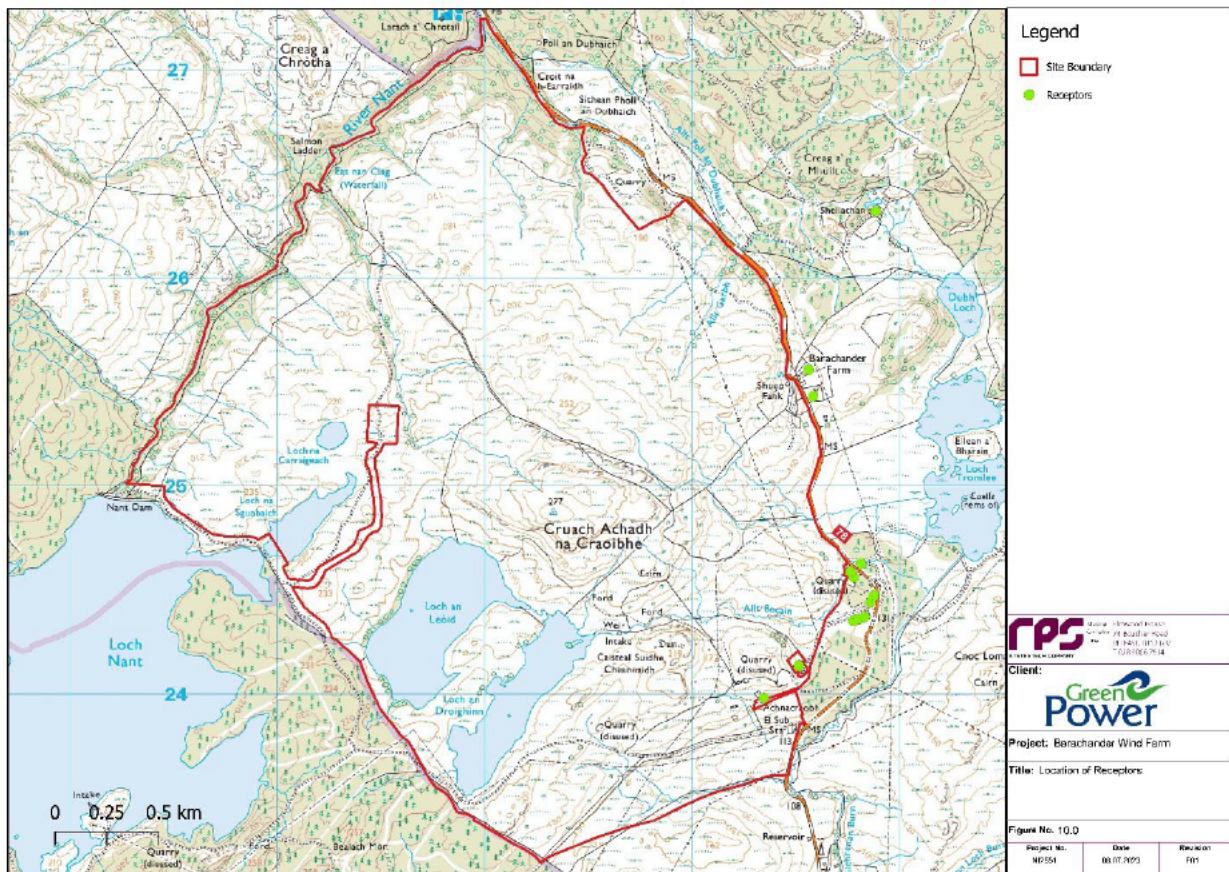


Figure 6.4: Location of Noise Sensitive Receptors (NSR)

6.9.3 Data Sources

Data sources to be relied on for the noise and vibration assessment of the Proposed Development are to include those summarised below in Table 6.9.1.

Table 6.9.1: Data Sources used for the assessment of Noise and Vibration

Data Source	Data Type
Ordnance Survey (OS)	Locations of buildings and receptors
Google Maps and Google Earth	Locations of buildings and receptors
Baseline Noise monitoring surveys (to be confirmed)	Baseline noise data

6.9.4 Baseline Environment

As the area is rural, the baseline noise levels are expected to be low; existing sources of noise include:

- Road traffic on the B845 to the east and south east of the site;
- Timber haulage vehicles utilising the haul route which bisects the existing redline boundary at the south;
- Noise from operations at the existing quarry located immediately adjacent to the northeast of the site;
- Wind induced noise through the surrounding trees and vegetation; and

- Livestock and bird song.

6.9.5 Potential Effects of the Proposed Development

The impacts that have been scoped into the Proposed Development assessment are outlined in Table 6.9.2 together with a description of any additional data collection (e.g. site-specific surveys) and/or supporting analyses (e.g. modelling) that will be required to enable a full assessment of the impacts.

At this stage, the potential impacts proposed to be scoped out of the assessment are described in Table 6.9.3.

Table 6.9.2: Effects to be Scoped into the Environmental Assessment of Noise and Vibration

Impact	Project Phase			Justification (including consideration of embedded mitigation measures)	Data Collection and Analysis Required to Characterise the Baseline Environment for the EIA	Summary of Proposed Approach to Assessment
	C	O	D			
Windfarm noise at nearest residential properties		O		Modern turbines can be operated in reduced noise mode if necessary to meet noise limits derived according to ETSU-R-97	Baseline noise monitoring surveys to be undertake in accordance with ETSU-R-97 and IoA Good Practice	Operational noise assessment to be undertaken in accordance with ETSU-R-97 and IoA Good Practice
Construction noise at nearest residential properties	C			Standard good practice measures to reduce noise during construction will be implemented in line with the concept of 'best practicable means' defined by the Control of Pollution Act 1974.	Application of construction noise limit for assessment determined following baseline noise monitoring surveys	Construction noise will be assessed in accordance with BS 5228-1: 2009, 'Code of practice for noise and vibration control on construction and open sites - Part 1: Noise'.

Table 6.9.3: Effects to be Scoped Out of the Environmental Assessment of Noise and Vibration

Impact	Justification
Construction	
Vibration effect	Vibration effects during construction are not expected to be significant. This is based upon likely levels and the distances to vibration sensitive receptors. Notwithstanding this in the event that stone is required to be extracted from borrow pits by blasting, such effects will be managed through a Scheme of Blasting
Operation and Maintenance	
Substation noise	Given the substantial (approximately 2.5km) separation distance between the substation and nearest NSR substation noise is to be scoped out of assessment.

Impact	Justification
Operational Traffic	Operational traffic is likely to be negligible, and therefore would be scoped out of the assessment.
Vibration effects	<p>Operation vibration effects are not expected to be significant. This is based upon likely levels and the distances to vibration sensitive receptors. Due to advance in turbines design, low frequency noise and vibration from turbines has been reduced. Notwithstanding this, in November 2006, the UK Government released a definitive statement concerning Low Frequency Noise:</p> <p>"...there is no evidence of health effects arising from infrasound or low frequency noise generated by wind turbines"</p>
Blade swish	The assessment of blade swish is accounted for in most instances in the methodology defined by the ETSU-R-97 report. Therefore, a separate assessment is not proposed.
Amplitude Modulation	The guidance contained within the IoA GPG remains current, which states: "The evidence in relation to 'Excess' or 'Other' Amplitude Modulation (AM) is still developing. At the time of writing, current practice is not to assign a planning condition to deal with AM
Low frequency noise and infrasound	low frequency noise (generally described as 10 Hz to 200 Hz) is less perceptible than other frequencies emitted from the operational turbines (Bolin et al., 2011).is less perceptible than other frequencies emitted from the operational turbines (Bolin et al., 2011). Therefore, it is proposed to scope out the assessment of low frequency noise effects.
Decommissioning	
Decommissioning	<p>Noise and vibration effects, including piling activities will generate decommissioning noise that may impact receptors would be similar in nature to those of construction but would be more limited in geographical extent and timescale</p> <p>Any legislation, guidance or best practice relevant at the time of decommissioning would be complied with.</p>

6.9.5.1 Assessment of Effects

Construction

The construction of the proposed development may result in noise and vibration impacts to NSRs in the vicinity of the proposed development. An assessment of construction noise effects would be undertaken in accordance with the guidance contained within BS 5228-1:2009+A1:2014: Code of practice for noise and vibration control on construction and open sites. Part 1: Noise (BS 5228-1).

It is anticipated that vibration effects during the construction phase would be low and would therefore be scoped out of the assessment.

The available detail on anticipated construction working areas, phases, methods and anticipated plant will be summarised in relation to noise and a qualitative assessment of likely compliance with the derived assessment criteria will be undertaken. Where the exact construction details are not known at the time of preparing the EIA Chapter, assumptions will be made based on professional judgement and experience of similar developments.

An assessment of potential impacts arising from any changes in traffic flows as a result of the proposed development will also be undertaken as part of the construction noise assessment.

Where necessary, appropriate levels of mitigation would be identified, in accordance with best practice, to ensure that noise levels are acceptable during the construction phase.

Operation

An assessment of operational noise effects will be undertaken using ETSU-R-97 and subsequent guidance in the IoA GPG (2013).

ETSU-R-97 recommends that noise limits should be set relative to existing background noise levels at the nearest receptors and that these limits should reflect the variation in background noise with wind speed. Separate noise limits apply for daytime and for night-time periods. Daytime limits are chosen to protect a property's external amenity, and night-time limits are chosen to prevent sleep disturbance indoors, with windows open.

Based on the adopted quiet daytime and night-time wind varying background noise levels for each identified NSR, noise immission limits will be derived in accordance with the methodology set out in ETSU-R-97.

A representative wind turbine will be nominated for the assessment from the wind turbines available that meet the design requirements for the development. A computer model will be constructed and used to predict noise levels resulting from the operation of the proposed wind farm, based on the methodology detailed in ISO 9613-2:1996, with the specific modelling procedure defined in the IoA GPG.

The significance of the predicted scheme noise immission levels will then be determined against the defined noise limits. The magnitude of impact for the operational noise assessment will be defined as follows:

- Predicted noise levels that comply with the ETSU-R-97 limits and do not exceed the background noise levels by more than 5 dB at all wind speeds will be considered a negligible impact;
- Predicted noise levels that comply with the ETSU-R-97 35 dB limits but which exceed background noise levels at some wind speeds by more than 5 dB, $L_{A90,10min}$ will be considered a low impact;
- Predicted noise levels that exceed the ETSU-R-97 limits by less than 5 dB will be considered a medium impact; and
- Predicted noise levels that exceed the ETSU-R-97 limits by more than 5 dB will be considered a high impact.

Impacts that are medium and high would be considered to result in a significant effect and would be material to the assessment. Mitigation to the scheme design will be highlighted in the event that significant effects are predicted. The residual significance of effects and outline proposals for post-completion monitoring will be reported.

6.9.6 Proposed Assessment Methodology

The EIAR chapter will consider the potential construction and operational noise and vibration effects of the proposed wind farm at NSRs identified as being potentially affected by the development. The assessment will identify where significant effects may occur, what mitigation measures may be necessary, what residual effects there may be and what post commissioning monitoring will be undertaken.

The operational noise assessment will include:

- Identification of NSRs, i.e., residential properties and other potentially noise-sensitive locations;
- If required, measurement of prevailing wind speed dependant background noise levels at nearby properties (where the predicted cumulative noise levels are no greater than the simplified criterion defined in ETSU-R-97 (ESTU, 1996) of 35dB, $L_{A90,10min}$ at wind speeds measured on-site of up to 10m/s, the consideration of background noise is unnecessary);
- Establishment of limits for acceptable levels of wind turbine noise;
- Prediction of the noise levels of wind turbine noise received at each NSR; and

- Comparison and assessment of the predicted levels with the noise limits.

The environmental assessment of noise and vibration will follow the methodology set out below. Specific to noise and vibration, the following legislation and guidance documents will also be considered:

Legislation

Control of Pollution Act 1974 (CoPA);

The Environmental Protection Act 1990 (EPA 1990) (UK Government, 1990)

Construction Noise

BS 5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise and Part 2: Vibration (British Standards Institution, 2014).

Operational Noise

PAN 01/2011 Planning and Noise and associated Technical Advice Note (Scottish Government, 2011);

ETSU-R-97 The Assessment and Rating of Noise from Wind Farms (The Working Group on Noise from Wind Turbines, 1996);

A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise (Institute of Acoustics (IoA), 2013) (IoA GPG); and

6.9.6.1 Baseline Studies

Baseline noise monitoring will be undertaken at residential NSRs where predicted noise levels from the proposed wind farm exceed the lower end of the range for the quiet daytime noise limit of 35 dB LA90,10min from ETSU-R-97 for any operational wind speed.

Where there are several NSRs within close proximity of each other that are subject to a similar baseline noise environment, noise monitoring will be undertaken at one representative location. Locations will be agreed prior to monitoring with the nominated Environmental Health Officer (EHO) from Argyll and Bute Council.

Baseline noise monitoring will be carried out following the guidance in ETSU-R-97 and subsequent guidance provided within the Institute of Acoustics' 'A Good Practice Guide to the Application of ETSU-R-97' (IoA GPG). Measurements will be taken of the LAF90 in consecutive 10-minute periods using class-one logging sound level meters over a period of three to four weeks. Concurrent measurements will be made of the wind speed from the meteorological mast installed on the application site and rainfall at one of the noise monitoring locations.

The baseline noise data from the surveys will be analysed and used to provide plots of the wind varying background noise levels for the quiet daytime and night-time periods specified within ETSU-R-97. Suitable noise limits for the wind farm will be then derived from the results of this regression analysis following the requirements of ETSU-R-97.

6.9.6.2 Derivation of Lower Limits

The noise limits described in ETSU-R-97 are a combination of a 5dB margin above the prevailing wind speed-dependent background noise level and fixed lower limits, applicable where background noise levels are low.

These limits apply to cumulative effects:

- For night-time periods (23:00 – 07:00), a fixed lower limit of 43dB, LA90 will be applied. A limit of 43dB(A) is recommended at night at wind speeds or locations where the prevailing wind speed related night-time background noise level is lower than 38dB(A); and
- For daytime periods, the fixed lower portion of the noise limit is defined in ETSU-R-97 as a value within the range 35 to 40dB, LA90,10min

ETSU-R-97 recommends that the fixed lower noise limit for daytime should be set within the range 35 to 40dB, LA90,10min, with choice of value dependent on the following factors:

- The number of dwellings in the neighbourhood of the Proposed Development;
- The effect of the noise limits on the number of kilo Watt hours (kWh) generated; and
- The duration and level of exposure.

Properties that have a financial interest in the Proposed Development and are subject to the increased ETSU-R-97 fixed lower limit of 45dB LA90,10min for both daytime and night-time periods. Any properties that have a financial interest in the project will be confirmed within the Noise & Vibration Assessment.

The noise immission limits will be derived in accordance with the methodology set out in ETSU-R-97.

The significance of the predicted scheme noise immission levels will then be determined against the defined noise limits.

6.9.6.3 Noise Prediction Methodology

A representative wind turbine will be nominated for the assessment from the wind turbines available that meet the design requirements for the Proposed Development.

- A computer model will be constructed and used to predict noise levels resulting from the operation of the proposed wind farm, based on the methodology detailed in ISO 9613-2:1996, with the specific modelling procedure defined in the IoA GP including:
- Turbine sound power levels stated to include an appropriate allowance for measurement uncertainty. If the data provided contains no allowance for measurement uncertainty, or uncertainties are not stated, an additional 2dB will be included;
- Receiver height of 4.0m;
- Atmospheric absorption should be calculated based on conditions of 10°C and 70% relative humidity;
- Ground factor assumed G=0.5 (mixed ground) except in urban areas or where noise propagates across large bodies of water, where G=0 (hard ground) should be assumed;
- Barrier attenuation should be limited to 2dB where there is no line of sight from the NSR.
- Additional 3dB will be added to noise immission levels at properties located across a valley or with heavily concave ground between the NSR location and the wind turbines; and
- The predicted noise levels (LAeq,) should be converted to the required LA90,10min by subtracting 2dB.

6.9.7 Potential Cumulative Effects

There are two wind farms in the vicinity of the proposed development that may need to be considered within the cumulative effects assessment which are as follows:

- Carraig Gheal Wind Farm and
- Beinn Ghlas Wind Farm.

RPS will liaise with the Environmental Health Department at Argyll and Bute Council, to discuss and agree whether a numerical assessment of cumulative effects from these wind farms would be required, and if there are any related planning conditions or other matters that would need to be taken into consideration within the assessment.

6.9.8 Scoping Questions to Consultees

- Do you agree with the data sources which are suggested for the assessment of noise and vibration?
- Do you agree that all sensitive receptors and impact pathways have been identified for noise and vibration?
- Do you agree with the proposed approach to the assessment of noise and vibration?

6.10 Chapter 10 – Traffic & Transport

6.10.1 Introduction

This section of the Scoping Report considers the potential Traffic and Transportation impacts of the Proposed Development arising during construction, operation / maintenance, and during decommissioning and will provide details on anticipated access arrangements. The assessment will be undertaken in line with relevant local and national policy and guidance.

6.10.2 Study Area

The Traffic and Transportation Study Area will consider the effects of construction and operational vehicle movements on the local road network and the Trunk Road network (where necessary) during the proposed construction phase and operational lifespan of the Proposed Development.

The construction period is where the greatest potential for impact lies, as there are very limited vehicle movements required during the operational phase. Considerations of the Proposed Development's impacts, particularly along the Abnormal Indivisible Load (AIL) route which will be used to facilitate the transport of turbine components, include swept path analysis of the defined route and passing bay requirements and considerations.

6.10.3 Baseline Environment

Vehicle movements associated with the site will comprise AILs, Heavy Goods Vehicles (HGVs), Light Goods Vehicles (LGVs) and cars associated with general construction site traffic. Options for access for wind turbine components include:

Proposed Route: The West Loch Awe Timber Haul Route (WLATHR) – turbine components delivered to Campbeltown Harbour would travel north on the A83 to Lochgilphead, north on the A816 to the junction with the West Loch Awe Timber Haul Route (WLATHR), which lies approximately 6km north of Kilmartin, and then finally heading northeast on the WLATHR through the existing Carraig Gheal Wind Farm to the proposed site access.

Figure 6.5 below illustrates the location of the site and WLATHR. This is also included as Figure 11 within Appendix A of this Report.

Additionally, other routes may be assessed, should they be identified and requested by the planning authority during the project's scoping stage.

The suitability of the WLATHR route for AIL (e.g., Blades, Nacelles, Hub and Tower Section) access has already been partially confirmed through the transport of turbine components associated with the existing Carraig Gheal Wind Farm. Whilst this provides some sanction that the environmental effects of the development on the surrounding road network can be satisfactorily mitigated, this element will be reviewed in connection with the specific parameters of this project.

Suitability of the B845 for connectivity to the A85 north of the site for delivery of goods (excluding AIL or delivery of turbine components) should be further assessed; this route was developed under the Forestry Scotland Strategic Timber Transport Scheme and has a number of identified Passing Points provided as this route forms a part of the Key Timber Haulage Route.

All other light vehicles requiring access to the site will make use of either option, whichever is the most convenient from their point of origin.

In order to inform an assessment of baseline conditions on the road network surrounding the Proposed Development site, as well as along the proposed AIL access route, existing traffic flow data will be sourced from Transport Scotland and Argyll & Bute Council. This will be supplemented with data from historic planning proposals as required, and traffic growth factors will be agreed in order to approximate traffic flows during the Proposed Development construction period.

The traffic flow information gathered during the Baseline assessment will be used to identify appropriate AADT (Annual Average Daily Traffic) flows on the relevant routes, including presentation of baseline HGV percentages.

Reference will also be made to supporting transport information for the Carraig Gheal Wind Farm, as this will contain useful information regarding the Abnormal Vehicle Route Assessment (AVRA), and potential ‘pinch points’ which have been previously identified, and the West Loch Awe Timber Haulage Route which has been jointly developed by Forestry Scotland and GreenPower to provide connectivity between the B845 and A816 roads, providing connectivity to the Transport Scotland Trunk Road network and reducing traffic on the public road network.

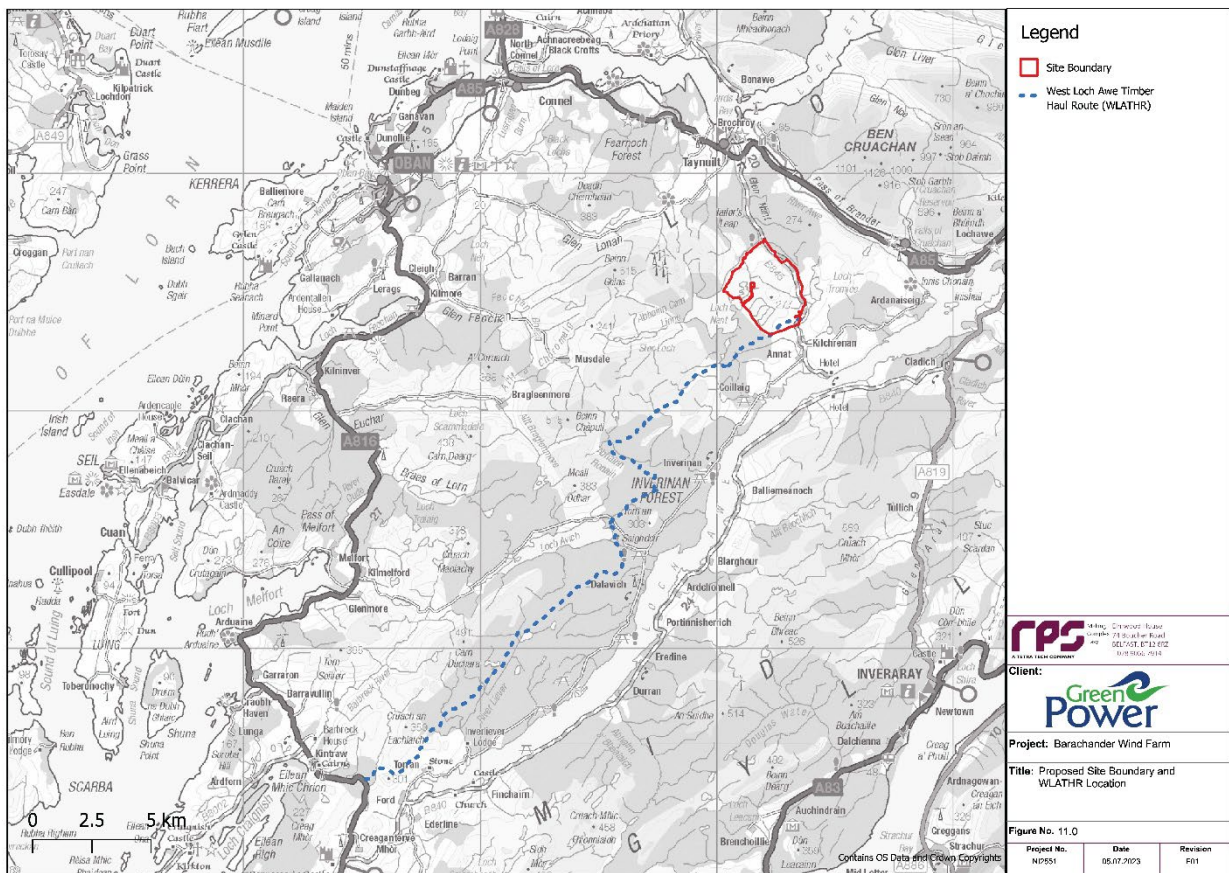


Figure 6.5 – Proposed site boundary and WLATHR Location

6.10.4 Proposed Assessment Methodology

6.10.4.1 Relevant Policy, Legislation and Guidance

In undertaking an assessment of the potential traffic and transport impacts associated with the Proposed Development, all relevant local and national policy and guidance will be taken into account, with specific reference to the following documents:

- Scottish Planning Policy (SPP)
- Guidelines for the Environmental Assessment of Road Traffic (IEMA, 1993) (the IEMA Guidelines)
- Transport Assessment Guidance (Transport Scotland, 2012); and
- Design Manual for Roads and Bridges (DMRB).

6.10.4.2 Assessment of Effects

The following environmental impacts will be considered within the Traffic and Transport EIA chapter:

- Severance
- Driver delay
- Pedestrian delay and amenity; and
- Accidents and Safety.

Where relevant, consideration of noise effects of traffic would be included within the Noise EIA Chapter. In addition to the list of impacts identified above, the overall carrying capacity of the identified access routes will be considered, although it is not anticipated that road carrying capacity will be a significant issue.

A cumulative assessment will also be considered within the Traffic and Transport chapter. The developments to be considered within the cumulative assessment will be determined during the study.

6.10.5 Scope of Assessment

The main transport constraints relating to the proposed development relate to the transportation of abnormal loads and the impact of general construction traffic on any sensitive receptors such as schools, hospitals, and settlements, etc., along the proposed construction route. An assessment of the AVRA will be undertaken to identify any pinch points on the road network which require measures to ensure the safe passage of AILs.

Overall traffic volumes will be profiled for the Proposed Development throughout the anticipated construction period, which will allow a consideration of daily changes in traffic flow against the previously established baseline. In order to quantify the significance of any changes in traffic flows, the following criteria will be used to establish a screening process (from IEMA Guidelines):

- *“Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%).”and*
- *“Include any other specifically sensitive areas where traffic flows will increase by 10% or More.”*

Where existing traffic levels are exceptionally low (e.g., on some unclassified roads), any increase in traffic flow is likely to result in a predicted increase in traffic levels which could in normal circumstances be considered a major impact. Where this situation is identified it is important to consider any increase both in terms of its relative increase in respect of existing traffic flows, as well as the overall total flow in respect of the available capacity of the section of road being considered.

Following identification of road links where there is a potential for a significant impact, this will be reviewed against the impact on sensitive receptors such as schools, hospitals, settlements, etc. This will be formally presented in the Traffic and Transport EIA Chapter alongside any mitigation measures required to reduce the severity of identified impacts.

Any potential environmental impacts including accidents and safety, driver delay, pedestrian amenity, pedestrian delay and severance are considered on a case by case basis using professional judgement and reasoned argument. The significance of any impacts assessed on the basis of the magnitude of the impact and the likelihood of the impact occurring.

It is proposed that this Chapter will be supported by an Outline Construction Traffic Management Plan (OCTMP) which will provide a palette of measures to manage temporary traffic increases in a safe and controlled manner along the selected access route. The priority of the OCTMP will be to ensure safe vehicle access to and from the site with health and safety as well as the welfare of the general public at the forefront of the document. Measures contained within the OCTMP will be tailored to the specifics of the proposal but are likely to include those intended to:

- Inform residents along haul routes of traffic movements and construction phases;
- Avoid periods of the day or certain scheduled calendar events to mitigate the potential for transport impacts – before and after school times for example;
- Protect against damage to public roads;
- Ensure rigorous health and safety procedures;
- Confirm procedures for site vehicles along haul routes including traffic control measures limiting reversing and turning movements.

The contents of the OCTMP will be adopted, worked up and confirmed by the appointed contractor prior to construction. It is likely that the requirement for a Final CTMP will be conditioned as part of any emerging consent for the project.

This is a standard and accepted approach in EIA processes

6.10.5.1 Matters to be Scoped Out

There are no existing pedestrian facilities in the vicinity of the Proposed Development site, and no likelihood of pedestrian movements that would therefore be impacted by the proposed development. The effects on 'pedestrian delay and amenity' can therefore be scoped out of the assessment.

The B845 forms part of the Caledonia Way, designated by Sustrans as a 234-mile long-distance cycle route between Campbeltown and Inverness, may be used for walking and cycling within the local area. As the proposed construction vehicle route for delivery of turbine components is via the WLATHR, no road closures will be required throughout the construction period, and the proposed development's access arrangements shall not affect the operation of this route during either the construction or operational phase. Therefore, effects on the core path network during the construction and operational phases are proposed to be scoped out of the EIA process in respect of Traffic and Transport.

Operational traffic movements as a result of the Proposed Development are anticipated to be low, and wind farm operations only require visits for monitoring and maintenance. Therefore, operational traffic is proposed to be scoped out of the EIA process in respect of Traffic and Transport.

At the end of the operational period, the wind farm will be decommissioned, and the site will be reinstated. Traffic associated with decommissioning would include HGVs, LGVs, ALVs and cars. It is anticipated that the number of number of vehicles associated with decommissioning would be significantly less than that associated with construction. At this early stage of the process, it is not yet possible to quantify the volume of traffic that will be associated with decommissioning as the precedent for commissioning has not yet been fully established. It is also not possible to forecast the effect of decommissioning traffic as over time the baseline will change. Therefore, effects associated with decommissioning are proposed to be scoped out of the EIA process.

6.10.6 Scoping Questions to Consultees

- Do you agree with the data sources which are suggested for the assessment of Average Annual Daily Traffic along key haulage routes through the provision of Transport Scotland Trunk Road counts?

- Do you agree that all sensitive receptors and impact pathways have been identified for Construction phase and AIL traffic and transportation?
- Do you agree with the proposed approach to the assessment of the key traffic generating phase, namely that the construction phase is likely generate significantly more trips than the operational phase?

6.11 Chapter 11 - Archaeology & Cultural Heritage

6.11.1 Introduction

This section of the Scoping Report considers the potential Cultural Heritage impacts of the Proposed Development arising during construction, operation and maintenance and during decommissioning.

The proposed scope has been informed by an initial desk-based study. Further baseline research, in particular a targeted walkover survey and visits to selected heritage assets in the surrounding area, will be undertaken as the project progresses.

6.11.2 Study Area

For the purposes of the cultural heritage assessment two study areas will be applied. The inner cultural heritage study area extends 1km from the Site (Figure 12, Appendix A). For this study area, data will be gathered in order to identify cultural heritage assets within the Site and to characterise the potential for hitherto unrecorded archaeological assets to be present. This information will be used primarily to inform the assessment of physical impacts during the construction phase.

The 1km distance is considered appropriate in a rural context as it generally provides sufficient background information to inform the assessment of potential without providing a large amount of extraneous information with little direct bearing upon the Site.

The outer cultural heritage study area extends 10km from the Site (Figure 13, Appendix A). Within it, designated heritage assets (Scheduled Monuments, Listed Buildings, Inventory Gardens and Designed Landscapes, Inventory Battlefields and Conservation Areas) have been identified, as have non-designated sites classed as being of schedulable quality by West of Scotland Archaeology Service (WoSAS). This data has been gathered to identify heritage assets where significant effects relating to setting are likely.

The 10km distance is considered appropriate as significant effects rarely occur beyond such distances; whilst developments may result in change in an assets' setting, at distances of more than 10km this is only likely to occur in adverse impact where assets have exceptionally strong relationships with distant landscape features. Such long-distance relationships are very rare. Pre-application consultation with Historic Environment Scotland (HES) has identified Dunadd (SM901108) as being potentially affected. Dunadd is approximately 35km to the south-west of the Site and HES have advised that views to Ben Cruachan from it contribute to its cultural significance. To ascertain whether the Proposed Development will appear in these views or impact on them, Dunadd will therefore be considered in the assessment. Consideration of nationally important designated assets outwith the outer cultural heritage study area has identified no other assets with such distant relationships that may be affected by the Proposed Development.

6.11.3 Baseline Environment

6.11.3.1 Designated Heritage Assets

6.11.3.1.1 Scheduled Monuments

There is one designated heritage asset in the Site: Caisteal Suidhe Cheannaidh, dun 470m NW of Achnacraobh (SM4120, Figure 12). This is a fort, probably Iron Age, with walls surviving to a height of 2m. In the scheduling information HES describe it as one of the best-preserved examples in Lorn.

There are 54 Scheduled Monuments in the outer study area (Table 6.11.1, Figure 14, Appendix A).

Table 6.11.1: Scheduled Monuments in the Outer Study Area

Reference Number	Title	Distance from Site
SM4204	Achlian, crannog 800m W of	63. 7.3km
SM4209	Tom a'Chaisteal, dun, Teatle Water	66. 9.7km
SM4272	Inistrynich, crannog 300m ESE of	69. 6.9km
SM4194	Lochawe, crannog 600m SE of	72. 7.9km
SM4077	Nelson Monument, inscribed stone, Taynuilt	75. 4.1km
SM4104	Larach Bhan, cairn 1530m NW of	78. 2.2km
SM4105	Larach Bhan, cairn 350m NW of	81. 1.1km
SM4137	Inishail, crannog 100m W of	84. 5.4km
SM4184	Inishail, church, cross & burial ground	87. 5.6km
SM4186	Keppochan, cup marked stone 600m ESE of	90. 5.9km
SM4193	Loch Awe, Carn an Roin, crannog	93. 3.3km
SM4198	Loch Awe, Eilean Seileachan, crannog 500m W of	96. 5km
SM4201	Rockhill Farm, cairn 400m WSW of	99. 3.8km
SM4202	Rockhill Farm, crannogs 750m NE & 200m N of	4.1km
SM4229	Loch Awe, Ceann Mara, crannog 150m SW of	3.9km
SM4303	Ardanaiseig, crannog 300m NE of	4.9km
SM4175	Carn Dubh, crannog E of Inverinan	5.9km
SM4227	Ballimeanoch, chapel & burial ground	6km
SM4197	Musdale, cairn 320m ESE of	7km
SM4304	Dun Iadain, fort 490m SW of Kilbride	9km
SM4115	Glenamachrie, cup marked stone 350m SSW of	8.8km
SM4121	Glenamachrie, cairns 850m ESE of	7.8km
SM4122	Clachadow, cup marked rock 100m SW of	6km
SM4189	Kilmun, enclosure 280m NE of	9.9km

Reference Number	Title	Distance from Site
SM5149	Dychlie, deserted crofts	9.9km
SM2219	Fraoch Eilean, castle	6.5km
SM90179	Kilchurn Castle, Dalmally	9km
SM3764	Taynuilt, standing stone 800m E of	4km
SM3773	Dun Leigh, dun 200m ENE of Balure	5.2km
SM4013	Dun Mhuirageul, dun SE of Taynuilt	2.9km
SM4037	Loch Tromlee, Eilean Tighe Bhain, fortified dwelling	0.5km
SM4048	Carn Ban, cairn, 200m S of	2.6km
SM4049	Larach Bhan, cup marked rock 1600m WNW of	1.9km
SM3682	Dun Creagach, dun 145m NW of Auchnacloch	9.5km
SM3886	Glenamachrie, standing stone 100m E of	8.5km
SM3891	Clachadow, cairn 960m NW of	7km
SM3866	Duntanachan, dun 515m W of	5km
SM3887	Duntanachan, cairn SW of	4.6km
SM3762	Taynuilt, Old Parish Church of Muckairn, tombstones and burial ground.	4km
SM2687	Baile Mhaodain, church	9.4km
SM3783	Dun Chathach, dun 630m E of Auchnacloch Railway Station	8.6km
SM3872	Clachadow, cairn 320m N of	6.2km
SM3888	Glenamachrie, cairns 65m & 300m WNW of	8.5km
SM3910	An Dun, dun 500m ESE of Glenamadrie	8km
SM3930	Barguilean Farm, dun 250m SSW of	3.8km
SM4002	Clachadow, dun 500m NW of	6.5km
SM4033	Barbreck, cairn 650m ESE of	2.3km
SM2699	Cladh na h'Annaid, burial ground 280m SE of Corachie Farm	2.7km

Reference Number	Title	Distance from Site
SM2527	Dun Mor, motte 380m WNW of Balure Cottage	5.4km
SM4047	Auchachenna, chambered cairn 190m SE of Craigloiste	2km
SM4034	Tom an lasgaire, fort	2.4km
SM3678	Cladh na h'Anaid, burial ground, 760m SE of Stonefield	8.4km
SM13644	Ardchattan Priory, priory, burial ground and carved stones	9km
SM90037	Bonawe, Iron Furnace	4.3km

The Scheduled Monuments comprise Prehistoric funerary cairns, crannogs, fortifications, standing stones and rockart, Medieval ecclesiastical sites and fortifications, and Post-Medieval/Modern industrial sites and settlements. They are of national importance and high sensitivity.

Although there are some outliers, most occur in three distinct clusters:

- Taynuilt: Bonawe Furnace (SM90037), duns (SM3773 & 4013), two standing stones (SM4077 & 3764) a motte SM2527 and a church (SM2527).
- Glen Lonan: cairns (SM4121, 3891, 3887, 3872, 3888) duns (SM3866, 3910, 3930 & 4002), rockart (SM4115 & 4122) and a standing stone (SM3886).
- Loch Awe (islands and fringes): crannogs (SM4137, 4193, 4194, 4198, 4202, 4204, 4229, 4272 & 4303), cairns (SM4033, 4048, 4105, 4201), castles (SM 2219 & 90179), a fort (SM4034) and a church (SM4184).

The locations of these clusters reflects the pattern of historic land use, with most settlement of all periods being located on or close to lower ground, with Prehistoric cairns and occasionally fortified sites occupying elevated locations overlooking the settled land. Most are relatively slight features in the landscape. Consequently, short range views contribute to the cultural significance of many of these monuments, but longer range views, i.e. in excess of 1km, are of lesser importance. The principal exception to this is Kilchurn Castle. This is a spectacular ruin and the long views from it down Loch Awe make a substantial contribution to its aesthetic value.

6.11.3.1.2 Listed Buildings

There are 29 Listed Buildings in the outer study area comprising five Category A, 16 Category B and six Category C (Figure 13, Appendix A).

Table 6.11.2: Category A Listed Buildings in the Outer Study Area

Reference Number	Title	Distance from Site
LB4700	St. Conan's Church Of Scotland, Lochawe	7.3km
LB50811	Falls Of Cruachan Railway Viaduct	3.7km
LB51688	Ben Cruachan Hydro Electric Scheme, Turbine Hall	3.7km
LB52504	1-4 Lochandu Cottages, excluding additions to rear, interiors and detached outbuildings, Bonawe	4.6km
LB52505	Shore House, excluding late 20th century house at southwest corner, Bonawe	4.8km

The cultural significance of these monuments does not substantively draw upon views to the surrounding landscape or of them in the wider landscape. This is similarly the case for the Category B and C Listed Buildings.

6.11.3.1.3 Inventory Gardens and Designed Landscapes (IGDL)

There are three Inventory Gardens and Designed Landscapes (IGDLs) in the outer study area (Figure 13, Appendix A)

Table 6.11.3: IGDLs in the Outer Study Area

Number	Reference.	Title	Distance from Site
GDL00019	Ardchattan Priory		8.75km
GDL00018	Ardanaiseig House		3.73km
GDL00007	Achnacloich		9.1km

Ardchattan Priory IGDL is described by the designation description as commanding long views to the south and south-east²⁰, which may take in the Site. Neither Ardanaiseig House nor Achnacloich are described as having views that might take in the Site.

6.11.3.1.4 Conservation Areas

There is one Conservation Area in the 10km study area: Lorn Furnace (CA474). This takes in Bonawe Furnace and related structures and areas, approximately 4km to the north of the Site. Views inland are only glimpsed from the Conservation Area and make only a slight contribution to the Conservation Area's cultural significance.

6.11.3.1.5 WoSAS Sites of Schedulable Quality

There are 11 WoSAS Sites of Schedulable Quality (coded as 'C' or 'V', respectively meaning certainly or probably of schedulable quality). These comprise a kerb cairn within the Site (Canmore 23467), two chambered cairns (Canmore 23463 & 23679), a dun (Canmore 23484), two crannogs (Canmore 23472 & 23475), a possible burial cairn and clearance cairns (Canmore 23440), a chapel (Canmore 23190) and a township (Canmore 77278) and a cluster of platforms (Canmore 23442).

The cultural significance of these assets relates primarily to their archaeological interest.

6.11.3.2 Non-Designated Heritage Assets

6.11.3.2.1 Introduction

The following presents a summary of the results of an initial desk-based assessment. Site visits have yet to be undertaken.

The Site lies within an area that was surveyed by the Royal Commission on the Ancient and Historic Monuments of Scotland (RCAHMS) in 1996. The survey comprised desk-based work and walkover survey.

²⁰ <http://portal.historicenvironment.scot/designation/GDL00019>

Consequently, the distribution of upstanding heritage assets within the Site is unusually well understood. Aside from this survey, fieldwork within the Site is limited to the targeted evaluation of sites in advance of the construction of the access track serving Carraig Gheal Wind Farm in 2010.

6.11.3.2.2 Prehistoric

Aside from the scheduled dun, recorded Prehistoric assets within the Site comprise a funerary cairn (Canmore 23467) and two burnt mounds (Canmore 199807 & 199809, Figure 12).

The cairn probably dates to the Bronze Age and although it has been robbed survives as an upstanding monument, topped by a modern cairn. It is considered by WoSAS to be of schedulable quality.

The burnt mounds are thought to be of late prehistoric date. There are no associated remains and they have no appreciable relationship with other assets in the area.

In addition to the above, two sites of possible Prehistoric date have been identified within the Site, but there is minimal evidence regarding them. It has been suggested that the small island on Loch an Drighinn may be a crannog, but no evidence to support this has been recorded (Canmore 80976) and it is thought to be natural. The second site is a group of stones recorded in the 19th century near Loch an Leoid, possibly representing a chambered cairn, where gold was reportedly found (Canmore 23481, not illustrated). Subsequent surveys have not located the stones and its location is unknown.

6.11.3.2.3 Early Medieval

No Early Medieval heritage assets are recorded in the Site.

6.11.3.2.4 Medieval and Post-Medieval

Medieval and Post-Medieval assets recorded within the Site comprise farmsteads, a township and related agricultural features in the southern and eastern parts of the Site at Barachander and Achnacraobh with associated field-systems and rig and furrow (eg Canmore 80998, 192172, 192175, 192176, 199915), whilst in the northern part of the Site there are charcoal-burning platforms and scattered agricultural remains (eg Canmore 192183, 192188, 192190, 192192, 192264).

6.11.3.2.5 Modern

The Modern period features recorded within the Site comprise buildings, quarries (Canmore 199968) and a still (Canmore 192189) dating to the 18/19th century. The farmsteads and townships thought to date to the Post-Medieval period at Barachander and Achnacraobh continued to be occupied into the Modern period and hence comprise elements of both periods.

6.11.3.3 Archaeological Potential

The greater part of the Site has relatively low potential to contain hitherto unrecorded heritage assets. This is a result of historic patterns of landuse that have seen activity concentrated on lower ground around lochs and along watercourses, and communications corridors. Within the Site, such ground comprises the valley of Allt Bocain, in its southern part. Away from here there is evidence of lower intensity activity on higher ground. The latter largely comprises seasonal grazing and other activities such as illicit distilling. Evidence for such activities such as shieling huts and illicit stills are generally concentrated around watercourses. A particular feature of this area is charcoal burning platforms, which are likely to be associated with the Bonawe Iron Furnace. These are focused around the formerly forested areas in the northern part of the Site, which Roy's Military Survey demonstrates corresponded with the River Nant and its tributaries.

Given the small scale of the features likely to exist away from the core areas of occupation, ie shieling huts, illicit stills and charcoal burning platforms, there is potential for these to have been overlooked by the RCAHMS survey.

6.11.4 Proposed Assessment Methodology

6.11.4.1 Relevant Policy, Legislation and Guidance

The cultural heritage impact assessment will be undertaken in cognisance of the following policies and guidance:

- NPF4 – Policy 7
- Planning Advice Note 2/2011: Planning and Archaeology
- Historic Environment Policy for Scotland (HEPS) (HES 2019)
- EIA Handbook (NatureScot & HES 2018)
- Managing Change in the Historic Environment: Setting (HES 2020)
- Cultural Heritage Impact Assessment (IEMA 2021)
- Standard & Guidance for Historic Environment Desk-Based Assessment (ClfA 2020)

6.11.4.2 Assessment of Effects

Cultural heritage assets are given weight through the designation process. Designation ensures that sites and places are recognised by law through the planning system and other regulatory processes. The level of protection and how a site or place is managed varies depending on the type of designation and hence, the relevant legislation, policy and guidance. Table 6.11.4 provides guideline criteria for determining the sensitivity of heritage assets relevant to the Proposed Development using professional judgement.

Table 6.11.4: Guideline Criteria for Determining Sensitivity

Sensitivity	Guideline Criteria
High	Assets valued at an international or national level, e.g. World Heritage Sites, Scheduled Monuments, Category A Listed Buildings, Inventory gardens and designed landscapes, Inventory battlefields, some conservation areas and non-designated assets that meet the relevant criteria for designation in the opinion of the assessor. Category B or C-listed buildings where the existing designation does not adequately reflect their value, in the opinion of the assessor.
Medium	Assets valued at a regional level, e.g. Category B Listed Buildings, some Conservation Areas and non-designated assets of similar value in the opinion of the assessor. Category C Listed Buildings where the existing designation does not adequately reflect their value, in the opinion of the assessor.
Low	Assets valued at a local level, e.g. Category C Listed Buildings, some Conservation Areas and non-designated assets of similar value in the opinion of the assessor.

Magnitude of impact has been assessed using professional judgement and the guideline criteria provided in Table 6.11.5. In line with current guidance (NatureScot & HES 2018) impacts will be considered in terms of change in cultural significance:

- Adverse impacts are those that detract from or reduce cultural significance or special interest of heritage assets.
- Beneficial impacts are those that preserve, enhance or better reveal the cultural significance or special interest of heritage assets.

It should be noted that change in the fabric or setting of a heritage asset may leave its cultural significance unchanged. Such neutral change will be considered to represent no impact.

Table 6.11.5: Guideline Criteria for Determining Impact Magnitude

Magnitude	Guideline Criteria
Substantial Beneficial	Preservation of the asset in situ where it would be completely or almost completely lost in the do-nothing scenario or removal of elements of the setting that prevent the appreciation of the asset’s cultural significance.
Moderate Beneficial	Changes to key elements of the asset’s fabric or setting that result in its cultural significance being preserved, where they would otherwise be lost, or better revealed, facilitating the appreciation or experience teh asset’s cultural significance.
Slight Beneficial	Changes that result in elements of the asset’s fabric or setting that detract from its cultural significance being removed.
Slight Adverse	Changes to the elements of the fabric or setting of the heritage asset that contribute to its cultural significance such that this is slightly diminished or appreciable change in the setting that will affect overall experience of visiting the asset without adversely affecting its cultural significance or the appreciation and understanding of the asset.
Moderate Adverse	Changes to the elements of the fabric or setting of the heritage asset that contribute to its cultural significance such that this is substantially altered.
Substantial Adverse	Changes to the fabric or setting of a heritage asset resulting in the complete or near complete loss of its cultural significance, such that it may no longer be considered a heritage asset.

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 6.11.6 below. Effects of moderate and greater significance are considered significant in the context of the EIA Regulations.

Table 6.11.6: Assessment of Significance Matrix

Sensitivity	Magnitude		
	Substantial	Moderate	Slight
High	Major Adverse or Beneficial	Major or Moderate Adverse or Beneficial	Moderate or Minor Adverse or Beneficial
Medium	Major or Moderate Adverse or Beneficial	Moderate or Minor Adverse or Beneficial	Minor Adverse or Beneficial
Low	Moderate or Minor Adverse or Beneficial	Minor Adverse or Beneficial	Minor Adverse or Beneficial

6.11.5 Scope of Assessment

It is proposed that the following be scoped into the assessment:

- Construction phase physical impacts;
- Operational phase impacts upon designated heritage assets of national importance and assets identified as being of schedulable quality by WoSAS HER within 10km of the site;
- Operational phase impacts upon Dunadd; and
- Cumulative operational effects, with cumulative schemes to comprise Beinn Ghlas Wind Farm and Carraig Gheal Wind Farm.

Wind farm developments may result in change in the setting of large numbers of heritage assets without affecting their cultural significance. The assessment of operational effects will therefore be staged. The first stage will identify those assets upon which the Proposed Development may have an adverse impact. These will be taken through to detailed assessment. The remaining heritage assets will be scoped out of further assessment.

6.11.5.1 Matters to be Scoped Out

It is proposed that the following be scoped out of the assessment:

- Construction phase impacts relating to setting. Setting effects specific to the construction phase will be temporary, ceasing at the end of the construction phase. Significant effects relating specifically to the construction phase are therefore unlikely.
- Operational impacts upon Category B and C Listed Buildings and Conservation Areas. Initial consideration of these has not identified any sites where significant effects are likely.
- Operational impacts relating to non-designated assets, aside from those identified as being of schedulable quality by the WoSAS HER. Operational effects in respect of these are unlikely to be significant given that their sensitivity is considered to be medium or low.
- Impacts upon heritage assets in excess of 10km from the Site except for Dunadd. No likely significant effects have been identified beyond this distance.
- Cumulative physical effects. No assets that may be affected physically by the Proposed Development and the cumulative projects have been identified. Hence there is no potential for cumulative physical effects.

6.11.5.2 Baseline Studies and Supporting Information

The Site has been the subject of a previous survey by RCAHMS, including both desk-based work and field survey. It is not proposed to repeat this work. The results of the RCAHMS survey as relevant to the current assessment will be summarised and presented in a technical appendix. The RCAHMS work will be augmented by the results of targeted survey of the Proposed Development's construction footprint. This will take the form of a reconnaissance survey and detailed recording will not be undertaken at this stage. The technical appendix will identify heritage assets within the Site, characterise the potential for hitherto unrecorded archaeology to be present and identify variations in that potential.

Designated heritage assets will be detailed in a technical appendix. This will describe their cultural significance and the contribution of setting to this and, with reference to the Zone of Theoretical Visibility (ZTV) identify those that will be carried through to assessment.

It is proposed that the assessment of operational impacts be supported by the following visualisations:

Photomontages

- Caisteal Suidhe Cheannaidh, dun 470m NW of Achnacraobh (SM4120); and

Wireframes

- Loch Tromlee, Eilean Tighe Bhain, fortified dwelling (SM4037);

- Ardchattan Priory IGDL; and
- Dunadd (SM90108).

6.11.6 Scoping Questions to Consultees

- Do you agree with the proposed cultural heritage study areas?
- Do you agree with the proposed approach to the baseline study?
- Do you agree with the proposed list of visualisations?
- Do you agree with the proposed approach to the cultural heritage assessment?

6.12 Forestry

6.12.1 Introduction

This section of the Scoping Report considers the potential Forestry impacts of the Proposed Development arising during construction, operation and maintenance and during decommissioning.

6.12.2 Study Area

The Forestry Study Area is defined by the redline boundary for the site, as illustrated in Figure 1, Appendix A. The area required for the Proposed Development will be located within this redline boundary. To inform the Scoping Process a layout has been provided in Figure 2, Appendix A. Whilst this may be subject to alteration depending on feedback received through ongoing environmental survey as well as the Scoping process, the layout is representative of the scale of developable area within the wider site.

6.12.3 Baseline Environment

The site has recently been subject to a forest planting scheme comprising a mix of commercial softwood and broadleaf species, see Figure 6.6 below, also included as Figure 14 in Appendix A of this Report.

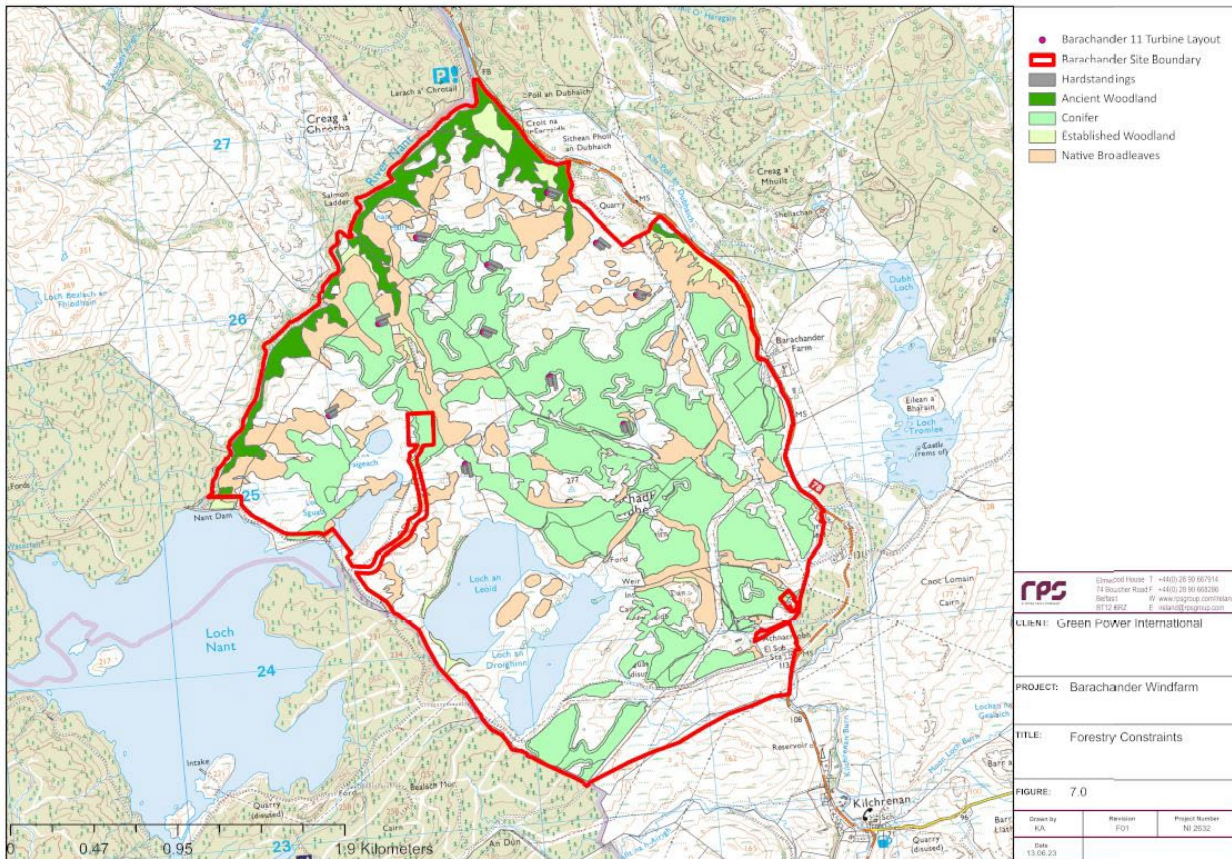


Figure 6.6 Forest Planting Scheme

Accordingly this is a forested site, however planting has occurred quite recently – within the past 12 months.

6.12.4 Proposed Assessment Methodology

6.12.4.1 Baseline Studies

The forestry chapter will set out the findings of the following:

- An updated desk study including:
 - Results from the Government’s MAGIC website for freely available statutory information including information on statutory designations; and woodland inventory;
 - Scotland’s environment mapping service. - Ancient Woodland Inventory;
 - Current Forestry Management Plans review following further site walkover.
- Survey work including:
 - Walkover survey of the main turbine sites within the forest to ground proof current information along with species composition, estimates of current tree size and condition;
- Information to be confirmed further to Scoping and as part of the EIA as associated iterative design process will include (beyond that identified above):
 - Turbine size;
 - Required upper canopy height of trees as per turbine;
 - Required clearance distance from the turbine;

- Access road clearance width;
- Final positions of all infrastructure associated with the Proposed Development.

6.12.4.2 Assessment of Effects

Any assessment of effects must not only take account of the present condition of forestry but also the future site context. This assessment must consider the timing of the Proposed Development alongside the timing of continued forestry maturation on site.

The assessment of forestry impacts will establish:

- The current forest condition;
- Likely yield class species growth rates to establish height / age assessment;
- The likely required removals of sections of forest to achieve the Proposed Development;
- The operations required to achieve the clearances required;
- The uses of the harvested material; along with
- The treatment of forestry residues from these operations
- Establish any compensatory woodland planting requirements.

If considered necessary through assessment, a Forestry Residue Management Plan will be appended to the forestry chapter.

The overwhelming majority of the forest will remain unaffected by the Proposed Development. Proposals will take account of existing planting mix and required felling to consider how future planting can improve the structure of the forest and its biodiversity value. Planting proposals will also be informed by other assessments including those in respect of ecology (Chapter 5) and ornithology (Chapter 6) to maximise enhancements to the baseline environment.

6.12.4.3 Relevant Policy, Legislation and Guidance

The EIA process will have regard to the Scottish Governments Policy on the Control of Woodland Removal (2019) relating to woodland removal required for the development.

It will consider current industry best practice and guidance including, but not limited to:

Forestry Commission: The UK Forestry Standard: The Government's Approach to Sustainable Forestry, Forestry Commission, Edinburgh.

Forestry Commission: The UK Forestry Standard Guidelines. Edinburgh.

SEPA: Guidance Notes WST-G-027 "Management of Forestry Waste".

SEPA: LUPS-GU27 "Use of Trees Cleared to Facilitate Development of Afforested Land.

UKWAS: The UK Woodland Assurance Standard Fourth Edition (version 4) (2018), UKWAS, Edinburgh.

6.12.5 Scope of Assessment

The proposed Scope of Assessment is based on preliminary findings and relevant project experience. This will take account of matters emerging during the EIA process.

6.12.5.1 Matters to be Scoped Out

Matters to be Scoped out will be identified clearly within the EIAR Chapter and will be based on the findings of the initial desk-top consideration, any baseline field surveys and project experience.

6.12.6 Scoping Questions to Consultees

- Do you agree with the data sources which are suggested for the assessment of forestry?
- Do you agree with the proposed approach to the assessment of forestry?

6.13 Shadow Flicker

6.13.1 Introduction

“Shadow flicker” refers to the effects that can be caused when the blades of a turbine cast shadows across a narrow opening in a building such as a window. Whether an effect occurs and the intensity of the effect depends on a number of factors. Primarily, the turbine needs to be in a line in between the sun and the window; in northern latitudes this means that the turbine position needs to be between north and 130° and greater than 230° from north relative to the affected building.

The severity of the effect also depends on separation distance between the receptor and the turbine as well as the time of day. As the sun changes altitude throughout the day and at certain times it may be too high in the sky to cast long shadows, which are generally only experienced close to sunrise and sunset.

Other factors also affect the severity of the effect, such as topography, the direction of the wind, the wind speed and level of sunshine as these either affect the intensity of contrast between sunlight and shade or the size of the shadow cast so it may not completely cover the window aperture.

Shadow flicker is generally experienced only inside buildings as this is where there is greater contrast between the normal light levels and the shadows. The further turbines are from receptors, the less intense the shadow is as the disc formed by the rotor blades does not wholly obscure the sun, so the shadows are less pronounced.

6.13.2 Study Area

Baseline conditions were established through desk-based examination of Ordnance Survey mapping at scales of 1:25,000 and 1:10,000. The study area within which shadow flicker effects are considered is proposed as 1550m (10 x rotor diameters) around proposed turbine locations. An additional micro-siting distance of 100m around each turbine is also considered. Figure 15 contained within Appendix A of this Report illustrates the proposed Shadow Flicker study area based on the Scoping Layout, which is also included as Figure 2 within Appendix A.

The rationale for applying a 10 x rotor diameter study area is set out within Section 6.13.4.2.1 below.

6.13.3 Baseline Environment

Carraig Gheal and Beinn Ghlas wind farms are operational and are located to the west and northwest of the site. Their locations mean they do not contribute to or create any shadow flicker effects overlapping or to the east of the site where receptors are located

6.13.4 Proposed Assessment Methodology

There are various sources of guidance with regard to shadow flicker impacts caused by wind turbines. The most relevant extracts have been presented and summarised below. However, the material regarding shadow flicker is quite extensive and not all aspects have been summarised here. The UK shadow flicker information is presented for reference to provide technical context.

6.13.4.1 Relevant Policy, Legislation and Guidance

6.13.4.1.1 Parsons Brinckerhoff, 2011 – Update of UK Shadow Flicker Evidence Base

An introduction to shadow flicker is set out within the Scottish Government's web-based renewables guidance on Onshore Wind Turbines. However, there are no statutory or advisory limits in this or other UK legislation or policy to determine what levels of shadow flicker are acceptable. However, the guidance is consistent with the findings of a DECC report, Update of UK Shadow Flicker Evidence Base, published in 2011.

The three key computer models used by the industry are *WindPro*, *WindFarm* and *Windfarmer*. It has been shown that the outputs of these packages do not have significant differences between them. All computer model assessment methods use a "worst case scenario" approach and don't consider "realistic" factors such as wind speed and cloud cover which can reduce the duration of the shadow flicker impact.

Mitigation measures which have been employed to operational wind farms such as turbine shut down strategies, have proved very successful, to the extent that shadow flicker cannot be considered to be a major issue in the UK.

National and local guidance is consistent with the findings of the DECC study. In particular, Scottish Government Onshore Wind Turbines planning advice stipulates that, in most cases, where separation is provided between wind turbines and nearby dwellings (as a general rule, 10 rotor diameters), shadow flicker should not be a problem.

6.13.4.1.2 Planning advice relating to onshore wind turbines, Scottish Government, 2014

Shadow flicker: Under certain combinations of geographical position, time of day and time of year, the sun may pass behind the rotor and cast a shadow over neighbouring properties. When the blades rotate, the shadow flicks on and off; the effect is known as 'shadow flicker'. It occurs only within buildings where the flicker appears through a narrow window opening. The seasonal duration of this effect can be calculated from the geometry of the machine and the latitude of the potential site.

Where this could be a problem, developers should provide calculations to quantify the effect. In most cases however, where separation is provided between wind turbines and nearby dwellings (as a general rule, 10 rotor diameters), 'shadow flicker' should not be a problem. However, there is scope to vary layout/reduce the height of turbines in extreme cases.

Relevant guidance on wind energy is provided in the Scottish Government's Online Planning Advice on Onshore Wind Turbines (May 2014), whilst wind turbine manufacture, installation and operation is undertaken in accordance with the relevant European and British Standards.

Renewable UK has also published health and safety guidelines for the operation of wind developments which will be fully adhered to during this project. By adhering to such guidance operational health and safety risks will be minimised and fully mitigated.

It is now common for wind farm developers to submit a planning application requesting an operational lifetime of greater than 25 years.

6.13.4.2 Assessment of Effects

6.13.4.2.1 Discussion – 10 Rotor Diameter Exclusion Zone

It is common to use 10 rotor diameters as a maximum limit within which significant shadow flicker effects can occur. The validity of this limit is discussed at length within the relevant literature. The guidance on this particular criterion varies in different documents and countries, with some stating that effects can only occur within this distance and others stating that this is a general rule or that the risk beyond this distance is low.

The Scottish Governments planning advice on wind farms (Scottish Government, 2014c) outlines the requirement that “where separation is provided between wind turbines and nearby dwellings (as a general rule 10 rotor diameters), ‘shadow flicker’ should not be a problem.”

RPS proposes to consider receptors within 10 rotor diameters. This makes the 10 rotor diameter zone for each turbine measure out to 1,550m from the turbine. As per Section 1.1.2 the proposed study area will also take account of any micro-siting area. This is considered an appropriate zone for potentially significant effects based on the available guidance and because other features of the modelling are highly conservative as set out in section 6.13.4.1.1

6.13.4.2.2 Acceptable limits

There is no formal limit on the amount of shadow flicker that is considered acceptable within the UK. Other European countries do have limits, and these vary from one country to another. A typical limit, which has been utilised in Northern Ireland, Republic of Ireland, Germany and Belgium, is 30 hours per year with a maximum of 30 minutes per day. Since there is no formal guidance on this subject in the UK, the discussion of the results relative to these limits is for reference purposes only. If shadow flicker effects are predicted beyond this limit, mitigation may be required to eradicate the occurrence of shadow flicker. This is typically controlled by remote automatic wind turbine shutdown, although other forms of mitigation will be explored.

Shadow flicker effects can only occur under specific conditions so, in reality, turbine shutdown may not be required to eliminate effects i.e. shadow flicker cannot occur if the weather at the time of predicted effects is not clear and sunny or if the rotor is not “face on” to the dwelling.

6.13.5 Scope of Assessment

The Shadow Flicker assessment will assess the effects of the Proposed Development on those receptors located within the 10 rotor diameter allowing for the 100m micro-siting buffer.

6.13.6 Scoping Questions to Consultees

- Is the proposed Scope including application of 10 x Rotor Diameter Study Area (plus micro-siting area) acceptable?

6.14 Aviation and EMI

6.14.1 Aviation

6.14.1.1 Introduction

This section of the Scoping Report considers the potential aviation impacts of the Proposed Development arising during construction, operation and maintenance and during decommissioning.

Wind developments have the potential to impact aviation and radar infrastructure in their vicinity. This is predominantly due to three main considerations, namely:

- Wind turbines as physical structures that present a collision risk;
- Wind turbines interacting with electromagnetic signals; and
- Electromagnetic emissions emitted by the wind farm itself.

The second category can be further subdivided but essentially this comes down to weakening a radio signal in the shadow of the wind development or reflection of an electromagnetic signal in unwanted directions.

6.14.1.2 Study Area

Consultation criteria for civil aviation stakeholders are defined in Chapter 4 of the CAP 764 document and the recommended distances include:

- Airfield with a surveillance radar – 30km;
- Non radar licensed aerodrome with a runway of more than 1,100 m – 17km;
- Non radar licensed aerodrome with a runway of less than 1,100 m – 5km;
- Licensed aerodromes where the turbines would lie within airspace coincidental with any published Instrument Flight Procedure (IFP);
- Unlicensed aerodromes with runways of more than 800 m – 4km;
- Unlicensed aerodromes with runways of less than 800 m – 3km;
- Gliding sites – 10km; and
- Other aviation activity such as parachute sites and microlight sites within 3km – in such instances developers are referred to appropriate organisations.

CAP 764 goes on to state that these distances are for guidance purposes only and do not represent ranges beyond which all wind turbine developments will be approved, or within which they will always be objected to. These ranges are intended as a prompt for further discussion between developers and aviation stakeholders. Key stakeholders include:

- Licensed and unlicensed aerodrome within the associated safeguarding distances;
- National Air Traffic Services (NATS) En Route Ltd (NERL) and their associated communications, navigation and surveillance systems – a network of primary and secondary radars and navigation facilities around the country;
- The Met Office regarding their weather radar;
- Ministry of Defence (MOD) as safeguarded by the Defence Infrastructure Organisation (DIO). The types of issues that will be addressed in the EIAR include:
 - MOD Airfields, both radar and non-radar equipped;
 - MOD Air Defence Radars; and
 - Military Low Flying.

The relevant safeguarding distance varies depending on the type of infrastructure being considered. Long range radar used for en-route navigation purposes can reasonably be safeguarded against wind turbines at ranges of 100 km or more. Specific aerodromes are typically safeguarded against physical obstructions that present a collision risk within ranges of less than 20 km.

6.14.1.3 Baseline Environment

Preliminary analysis for a wind turbine tip height of 180 m was completed for the Proposed Development and the following aviation risks were identified. These will be examined further within an Aviation Impact Assessment:

- Military Low Flying System – the Proposed Development is located within a low priority military low flying area – safeguarded by the MOD;
- Oban Airport (Licensed) – the Proposed Development is located within 14.1km of the aerodrome;
- Tiree Primary Surveillance Radar – 105km from the Proposed Development – safeguarded by NATS NERL;

- Aviation Lighting – a requirement for any wind development measuring 150m or more above ground level. This will likely be decided post-consent and a detailed assessment will inform a lighting scheme in accordance with UK Civil Aviation Authority (CAA) policy.

6.14.1.4 Proposed Assessment Methodology

6.14.1.4.1 Relevant Policy, Legislation & Guidance

Guidance related to Scotland for aviation specifically is stated below:

- Onshore wind: policy statement 2022. Version dated 21 December 2022;
- Onshore wind turbines: planning advice - Planning advice relating to onshore wind turbines. Scottish Government version dated 28 May 2014.

Guidance and policy in respect of Aviation are dictated primarily by the Civil Aviation Publications (CAP) which are produced by the CAA. There is also policy provided by the Ministry of Defence (MOD) and National Air Traffic Service (NATS). Specific document guidance documents relevant to the Proposed Development include:

- CAA (2022), CAP 168: Licensing of Aerodromes – Edition 12²¹;
- CAA (2019), CAP 670: Air Traffic Services Safety Requirements – Edition 3²²;
- CAA (2020), CAP 738: Safeguarding of Aerodromes – Edition 3²³;
- Civil Aviation Authority (2016), CAP 764: CAA Policy and Guidelines on Wind Turbines – Edition 6²⁴;
- CAA (2018) CAP 777: Air Traffic Control (ATC) Surveillance Minimum Altitude Charts in UK Airspace Policy and Design Criteria²⁵;
- International Civil Aviation Organization (ICAO) Procedures for Air Navigation Services, Aircraft Operations, Volume II Construction of Visual and Instrument Flight Procedures, Fifth Edition²⁶;
- NATS Aeronautical Information Publication (AIP) (digital resource, various publication dates)²⁷;
- Air Navigation Order, 2016 – government legislation²⁸.

6.14.1.4.2 Assessment of Effects

The effect upon aviation and radar systems is dependent on numerous factors including the size, number and location of wind turbines relative to the aviation infrastructure. Therefore, the resulting effect on the relevant infrastructure will vary. Therefore the sensitivity of the receptor will range between Low to High, depending on the specific operation or infrastructure.

Table 6.14.1 below presents the Significance Matrix in consideration of the magnitude of impact and the sensitivity/value of the receptor.

²¹ CAA (2019) CAP 168. Available at: [CAP 168](#). Accessed online 20/01/2023

²² CAA (2019) CAP 670. Available at: [CAP 670](#). Accessed online 20/01/2023

²³ CAA (2020) CAP 738. Available at: [CAP 738](#). Accessed online 26/01/2023

²⁴ CAA (2016) CAP 764. Available at: [CAP 764](#). Accessed online 26/01/2023

²⁵ CAA (2018) CAP 777, Available at: [CAP 777](#). Accessed online 20/01/2023

²⁶ ICAO Procedures for Air Navigation Services, Aircraft Operations, Volume II Construction of Visual and Instrument Flight Procedures, Fifth Edition

²⁷ NATS Aeronautical Information Publication (AIP) (digital resource, various publication dates). Available [here](#).

²⁸ Air Navigation Order, 2016 – government legislation. Available [here](#).

Table 6.14.1: Assessment of Significance Matrix (Complex)

Severity	Magnitude of Impact				
	No Change	Negligible	Low	Medium	High
Negligible	No change	Negligible	Negligible or Minor	Negligible or Minor	Minor
Low	No change	Negligible or Minor	Negligible or Minor	Minor	Minor or Moderate
Medium	No change	Negligible or Minor	Minor	Moderate	Moderate or Major
High	No change	Minor	Minor or Moderate	Moderate or Major	Major or Substantial
Very high	No change	Minor	Moderate or Major	Major or Substantial	Substantial

The Significance of Effect, which would be considered ‘significant’ in the professional opinion of Pager Power is ‘Moderate’ or greater, and mitigation would be required.

The above classification considers the operational phase. The Significance of Effect during construction or decommissioning in terms of effects will be less than or equal to the Significance of Effect during operation.

6.14.1.5 Scope of Assessment

It is recommended that aviation is scoped in, in the first instance due to the significance of any impact and the potential implications upon planning and aviation safety. However, if the technical analysis and consultation reveal no significant issues requiring mitigation, then aviation should be scoped out. An Aviation Impact Assessment will however support the application in either circumstance.

The projects to be considered cumulatively with the Proposed Development are:

- Beinn Ghlas Wind Farm; and
- Carraig Gheal Wind Farm.

6.14.2 Television & Radio

6.14.2.1 Introduction

This section of the Scoping Report considers the potential terrestrial television and radio impacts of the Proposed Development arising during construction, operation and maintenance and during decommissioning.

Terrestrial television and radio signals propagate from transmitters to receiving aerials, which are in turn connected to television and radio receiving equipment. Wind turbines can cause interference to terrestrial television and radio signals in three ways, namely:

- As a physical structure that blocks/weakens the transmitted signal, reducing the strength of the coverage in the shadow zone. Losses in strength due to this mechanism are called ‘diffraction losses’;

- The wind turbine blades intermittently ‘chop’ through the direct coverage path, causing fluctuations in received power;
- The wind turbines can reflect the signal in an unwanted direction, such that the same signal arrives twice at a receiving aerial with a time delay.

6.14.2.2 Study Area

The methodology used by Pager Power is to undertake Carrier to Interference Ratio (CIR) calculations relative to the turbine and an area surrounding the Proposed Development (20 km by 20 km)²⁹.

6.14.2.3 Baseline Environment

An initial assessment has been completed to identify the baseline environment with respect to the relevant terrestrial television and radio transmitters serving the study area. The relevant transmitters are as follows:

- Torosay Main Transmitter;
- Taynuilt Relay Transmitter;
- Dalmally Relay Transmitter;
- Dychliemore Link Relay Transmitter.

6.14.2.4 Proposed Assessment Methodology

6.14.2.4.1 Relevant Policy, Legislation & Guidance

Guidance related to Scotland for television and radio specifically is stated below:

- Onshore wind: policy statement 2022. Version dated 21 December 2022;
- Onshore wind turbines: planning advice - Planning advice relating to onshore wind turbines. Scottish Government version dated 28 May 2014.

For terrestrial television and radio signals, there is no set national or local guidance on the assessment process. Therefore the assessment methodology has been derived from Pager Power’s expertise and assessment experience.

6.14.2.4.2 Assessment of Effects

No preliminary analysis has been completed with respect to terrestrial television services. The terrestrial transmitters serving the area will broadcast digital television signals only. Both digital and analogue radio signals will be broadcast. A desk-based study and/or site survey can be undertaken to determine the potential interference of the Proposed Development upon terrestrial television and radio signals either during planning or post-consent as part of a planning condition.

For terrestrial television and radio signals, the sensitivity of the receptor is considered to be Low.

Table 6.14.1 above presents the Significance Matrix in consideration of the magnitude of impact and the sensitivity/value of the receptor.

²⁹ This will be modelled as a square centred on the Proposed Development.

The Significance of Effect, which would be considered 'significant' in the professional opinion of Pager Power is 'Moderate' or greater, and mitigation would be required.

The above classification considers the operational phase. The Significance of Effect during construction or decommissioning in terms of effects will be less than or equal to the Significance of Effect during operation.

6.14.2.5 Scope of Assessment

If adverse effects on television or radio services occur as a result of the Proposed Development, mitigation measures will be required. The most effective form of mitigation is dependent on the specific impact. The impacts will only be identified once the Proposed Development is operational via complaints received or by carrying out a post-construction survey. The requirement for the implementation of such measures will be addressed on a case-by-case. A mitigation strategy can be implemented pursuant to a planning condition.

It is recommended that a technical assessment, either desk-based or a baseline reception survey, is progressed at the earliest opportunity as per best practice, and that suitable planning conditions are agreed at the planning stage. Provided this process is followed, it is considered appropriate for terrestrial television and radio signal impacts to be scoped out.

The projects to be considered cumulatively with the Proposed Development are:

- Beinn Ghlas Wind Farm; and
- Carraig Gheal Wind Farm.

6.14.3 Telecommunications

6.14.3.1 Introduction

This section of the Scoping Report considers the potential telecommunications impacts of the Proposed Development arising during construction, operation and maintenance and during decommissioning.

Wind turbines have the potential to impact telecommunication operations and infrastructure. There are many forms of telecommunications infrastructure in the UK. The most relevant aspect in the context of potential restrictions/mitigation requirements for wind developments is the presence of wireless fixed links between radio antennae. Such links broadly fall into two categories, namely:

- 'Microwave links', which provide high-frequency data transfer between antennae and are utilised by mobile phone operators and the emergency services to support their communications network;
- Ultra High Frequency (UHF) links, which are utilised by operators including utility companies.

6.14.3.2 Study Area

The telecommunications study areas should be limited to telecommunication infrastructure within 1km of each wind turbine within the Proposed Development.

6.14.3.3 Baseline Environment

Consultation with the relevant telecommunications stakeholders is required to understand the baseline environment. This process will gain the most up-to-date infrastructure which is located near to and/or traverses wirelessly through the site. This process will be undertaken within the Telecommunication Impact Assessment which is to be completed as part of this application. Therefore at this point the baseline environment is unknown.

6.14.3.4 Proposed Assessment Methodology

6.14.3.4.1 Relevant Policy, Legislation & Guidance

Guidance related to Scotland for telecommunications specifically is stated below:

- Onshore wind: policy statement 2022. Version dated 21 December 2022;
- Onshore wind turbines: planning advice - Planning advice relating to onshore wind turbines. Scottish Government version dated 28 May 2014.

There is no legislation or formal policy with comprehensive or quantitative methodologies for the management of telecommunications issues. The documents below represent the guidance and industry best-practice for the topic in respect of wind energy developments:

- International Telecommunications Union (1992), Assessment of impairment caused to television reception by a wind turbine, Recommendation ITU-R BT805³⁰;
- International Telecommunications Union (2010), ITU-R BT.2142-1³¹;
- Bacon (2002), A proposed method for establishing an exclusion zone around a terrestrial fixed radio link outside of which a wind turbine will cause negligible degradation of the radio link performance³²;
- Joint Radio Company (JRC) (2014): Calculation of Wind Turbine clearance zones for JRC Ultra High Frequency (UHF) (460 MHz) Telemetry Systems when turbine sizes and locations are accurately known – Issue 4.2³³.

There is no national policy or legislation or policy setting out the process for assessing the impact of wind turbines upon telecommunications infrastructure. Pager Power considers the Second Fresnel zone when assessing the effect of a wind turbine upon microwave links and the 0.6th Fresnel zone when assessing UHF links³⁴. A buffer zone may then be added and then the rotor diameter to produce the exclusion zone. This is based on the Ofcom methodology. Where the link is UHF, reflection calculations in line with the Joint Radio Company (JRC) methodology may be completed. Furthermore, each stakeholder has their own fixed standoff distances and safeguarding criteria.

6.14.3.4.2 Assessment of Effects

The following stakeholders will be consulted as part of the Telecommunications Impact Assessment:

- Airwave;
- Arqiva;
- Atkins;
- British Telecom (BT);
- JRC;

³⁰ International Telecommunications Union (1992), Assessment of impairment caused to television reception by a wind turbine, Recommendation ITU-R BT805.

³¹ International Telecommunications Union (2010), ITU-R BT.2142-1

³² Ofcom, D F Bacon (2002) Fixed-link wind-turbine exclusion zone method [Online] Available at: [Fixed-link wind-turbine exclusion zone method](#). Accessed 25/05/2022

³³ JRC (2014): Calculation of Wind Turbine clearance zones for JRC UHF (460 MHz) Telemetry Systems when turbine sizes and locations are accurately known – Issue 4.2

³⁴ Manning, T. (1999) *Microwave Radio Transmission Design Guide*. Artech House Books

- Mobile Broadband Network Limited on behalf of Ericsson (MBNL);
- MLL Telecom;
- Telefonica; and
- Vodafone.

If a stakeholder raises an objection, an assessment of the link or infrastructure will be undertaken to determine whether there is an impact and its magnitude. The link data supplied by the stakeholder will be used to model exclusion zones of each link and to calculate the clearance/infringement of the Proposed Development. A significant impact occurs where the outcome of the analysis confirms the infringement of a link and that mitigation will be necessary. The process for mitigation is to engage with the stakeholder managing the link to discuss a mitigation strategy.

It is common practice for developers to assess potential impacts and, where necessary, mitigate them. It is extremely uncommon for wind developments to be refused planning permission on the basis of telecommunications issues. This is largely because technical solutions generally exist and are commercially viable.

For telecommunications, the sensitivity of the receptor will range between Low to Medium, depending on the specific operation or infrastructure.

Table 6.14.1 above presents the Significance Matrix in consideration of the magnitude of impact and the sensitivity/value of the receptor.

The potential effect of wind turbines on telecommunication links is the partial or complete loss of information transferred via radio waves which are interfered with by wind turbines, be it the static structure or rotating blade. The effect is dependent on numerous factors including the relative location of the link ends to the wind turbines, the level of visibility between link ends and wind turbines, the link's frequency and the number of wind turbines in proximity to a link path. Therefore, the resulting effect on individual point-to-point links will vary.

The Significance of Effect, which would be considered 'significant' in the professional opinion of Pager Power is 'Moderate' or greater, and mitigation would be required.

The above classification considers the operational phase. The Significance of Effect during construction or decommissioning in terms of effects will be less than or equal to the Significance of Effect during operation.

6.14.3.5 Scope of Assessment

It is recommended that telecommunications infrastructure is scoped in. However, if the Telecommunications Impact Assessment and consultation reveal no significant issues requiring mitigation, then telecommunications should be scoped out. The Telecommunications Impact Assessment will support the application in either circumstance.

The projects to be considered cumulatively with the Proposed Development are:

- Beinn Ghlas Wind Farm; and
- Carraig Gheal Wind Farm.

6.15 Socio-Economics and Tourism

6.15.1 Introduction

This section of the Scoping Report considers the potential socio-economic and tourism impacts of the Proposed Development arising during construction and operation and maintenance phases.

This section provides a brief introduction of potential socio economic and tourism effects of the construction and operation of the Proposed Development. This includes a consideration of employment and Gross Value Added (GVA) generation, tourism effects and any indirect supply chain economic effects from the Proposed Development.

The assessment will include a description of the current socio-economic and tourism baseline with the local area. This will include a summary of economic performance data for each study area and a description of the relevant tourism assets that will be covered in the assessment

This document forms the start of the consultation process, further consultation may be undertaken as required during the EIA process.

6.15.2 Study Area

The baseline environment will cover and compare three study areas:

- Local Area, comprising electoral wards (Oban North and Lorn) that cover the location of the development and nearest settlements (for instance Oban to the west, Taynuilt to the north and Dalmally to the east);
- Argyll and Bute (the local authority); and
- Scotland.

The economic impacts will be quantified and presented for the Argyll and Bute and Scotland study areas.

6.15.3 Baseline Environment

The baseline study will cover:

- The demographic profile of the local area within the context of the regional and national demographic trends;
- Employment and economic activity in the local area within the context of regional and national economies;
- The industrial structure of the local area within the context of regional and national economies;
- The role of the tourism sector in the local and regional economy;
- An analysis of tourism statistics in Scotland, Argyll and Bute and the local area (Oban North and Lorn);
- Identification of local tourism assets, including accommodation providers, visitor attractions and assets;
- Wage and salary levels within the regional economy compared to the national level; also including educational attainment levels within the regional area and compared to the national level; and
- An assessment of relative deprivation based on a review of the Scottish Index of Multiple Deprivation, over the period from 2004, through to 2020, to show how the local area has changed over time, compared to the national level.
- Tourist attractions and accommodation will be identified within 5, 10 and 15km of the site boundary. Tourist attractions include permanent fixtures (e.g., museums, attractions, castles and trails) as well as temporary events (e.g., music, sport, cultural or arts festivals). We do not anticipate any negative tourism effects, repeated studies demonstrate no negative effects, but on balance we will include as it may be the expected norm, but also given the additional positive benefit potential of visitors seeing Argyll and Bute as a sustainable destination playing a strong role in tackling climate change.

Important attractions attributed to Argyll and Bute and Oban North and Lorn will also be identified due to their increased sensitivity.

6.15.4 Proposed Assessment Methodology

There is no established guidance for conducting a socio-economic and tourism 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, informed by professional judgement. Cross-reference would be made to other technical assessments to consider potential effects on recreational assets and other leisure and tourism attractions in the vicinity.

Socio-economic effects will be considered based on the guidance from Guidelines for Environmental Impact Assessment and a Handbook for EIA (2004). A range of existing surveys and assessments of socio-economic and visitor profiles, land use and ownership, and public attitudes will be collated to provide background information against which to assess the potential for significant effects.

Socio-economic impacts associated with onshore wind farms primarily relate to job creation, use of local services and income spent in the locality of a project, and community benefit. These impacts can have both short and long term, direct beneficial effects for surrounding local communities. This aspect will be completed in line with NPF4 policy on energy developments, which states at Policy 11c *'Development proposals will only be supported where they maximise net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities.'*

As noted above a desktop socio-economic assessment will consider the potential direct and indirect effects of the Proposed Development, during both construction and operation phases. During the construction of the Proposed Development, local sourcing will be preferred where possible, bringing direct economic benefits from the Proposed Development. Similarly, operational jobs will inherently be targeted at people residing close to the Proposed Development, either local people or people relocating to the area for these job opportunities. An estimate of economic benefits will be provided in the EIA Report.

An assessment of effects upon tourism receptors will also be undertaken and will take into account published data on visitor numbers and the value of tourism to the economy of Argyll and Bute and Oban North and Lorn. This will also include consultations with local businesses such as accommodation associations and providers, tourism businesses, transport operators and visitor attraction and tourism agencies such as VisitScotland, Argyll and Bute Council, Argyll & the Isles Tourism Co-operative Ltd and other relevant consultees within the vicinity of the Proposed Development.

A cumulative assessment will also be presented, and this will take into account other similar renewable and infrastructure projects ongoing or planned in the local area. This will assess the cumulative impact of such investments, including the Proposed Development.

The applicant is committed to implementing accepted good practice measures during construction and operation, thereby ensuring that many potential adverse social and economic effects can be avoided or reduced. Possible mitigation measures may include the following:

- The programming of the transportation of abnormal loads wherever practicable to avoid peak visitor, or other busy periods to mitigate the effect of the Proposed Development on particularly sensitive locations, tourist/visitor viewpoints, and road corridors.
- Local sourcing of construction materials where possible to reduce the import and export of materials to and from the Site, limiting traffic movements on the surrounding road network and hence minimising related adverse effects upon visitors and locals.
- It is considered that there are opportunities to enhance positive effects resulting from the Proposed Development, including:

- Local promotion of contract and supply chain opportunities during construction and operation to maximise the use of local business and labour.
- Skills development and training programmes to increase local take up of training, apprenticeship and employment opportunities associated with the Proposed Development.
- Establishing effective linkages with local job centres, employability programmes and partners.
- Promotion of the wider area and its opportunities as part of the marketing of the Proposed Development.

6.15.4.1 Relevant Policy, Legislation and Guidance

It is also important that the socio-economic and tourism assessment takes account of the relevant local and national policy objectives. The most relevant objectives for this are expected to be included in the following strategies:

- National Strategy for Economic Transformation, 2022;
- National Planning Framework 4, 2023;
- Net Economic Benefits and Planning, 2016;
- Onshore Wind Policy Statement, 2022
- Draft Energy Strategy and Just Transition Plan, 2023;
- Argyll and Bute Economic Strategy, 2019;
- Rural Growth Deal for Argyll, 2021;
- Tourism Scotland 2030, 2020; and
- Argyll and Isles Strategic Tourism Partnership Visitor Economy Recovery and Growth Strategy, 2022.

These policy documents would also allow for the relevant baseline to be collected.

6.15.4.2 Assessment of Effects

The issues that will be considered in this assessment will include the potential socio-economic and tourism effects associated with the Proposed Development.

A socio-economic impact analysis will be undertaken using the methodology developed by RenewablesUK and deployed by MKA Economics, which has been used to assess over 30 renewable developments across Scotland. The potential socio-economic effects that will be considered are:

- Temporary effects on the regional and/or national economy due to expenditure during the construction phase;
- Permanent effects on the regional and/or national economy due to expenditure associated with the ongoing operation and maintenance of the Proposed Development;
- Permanent effects as a result of any additional public expenditure that could be supported by the additional tax revenue that would be generated by the Proposed Development during the operational phase; and
- Permanent effects on the local economy that could be supported by any community funding and/or shared ownership proposals during the operational phase of the Proposed Development; and

The tourism sector is an important contributor to the Scottish economy and whilst repeated studies and operational experience indicates no negative effect on tourism from onshore wind farms, there is merit in

considering whether the Proposed Development will have any effect (positive and negative) on the tourism sector, with particular reference to ensuring the construction phase minimises any disturbance to tourist routes.

This assessment will consider the potential effects that the Proposed Development could have on tourism attractions, tourism businesses, local accommodation, sailing and yachting charters, and tourism and recreational trails, such as:

- Dunollie Museum, Castle and Grounds;
- Dunstaffnage Castle and Chapel;
- Kilchurn Castle;
- Glen Nant;
- Barguillan's 'Angus Garden';
- Taynuilt Golf Club;
- Glencruiten Golf Club;
- Mccaigs Tower;
- Oban Distillery and Whisky Shop;
- Oban War and Peace Museum;
- Ocean Explorer Centre;
- Cruachan Power Station Visitor Centre;
- Ben Cruachan (1,126m);
- Stob Daimh (998m);
- Beinn Eunaich (989m);
- Beinn a'Chochuill (980m);
- Beinn Bhuidhe (948m); and
- Beinn a'Bhuiridh (897m).

This will consider the implications of any effects identified for the tourism sector in the local area and wider region. The assessment should also be read in conjunction with the Recreation and Land Use Assessment as in many cases the tourism assets are also recreational assets and therefore this assessment will, in part, assessment similar receptors when assessing tourism/recreational trails and routes.

Other issues, such as the implications for the agricultural and forestry sectors, may emerge during the assessment and will require consideration.

Effects will be considered based on the guidance from guidelines for Environmental Impact Assessments and a Handbook for EIA (2004).

The assessment will consider effects during **construction and operational** phases. Further, each assessment must consider the potential for **cumulative** effects.

The projects to be considered cumulatively with the Proposed Development are:

- Beinn Ghlas Wind Farm; and
- Carraig Gheal Wind Farm.

A further Scoping submission was made in relation to Musdale Wind Farm in 2020 but unless advised, this need not form part of the cumulative assessment

The predicted socio-economic and tourism effects of the Proposed Development on the recreational and tourism asset base are assessed, using the significance criteria outlined in Table 6.15.1. As there are no published standards or technical guidelines that set out a preferred methodology for assessing the likely socio-economic or tourism effects of a project of this nature, professional judgement, with reference to commonly used methodologies, and recognised approaches to quantifying economic effects, is used to determine the significance criteria. Major or moderate effects are defined as significant in EIA terms.

Table 6.15.1: Significance Criteria

Significance	Description
Major	Major loss / improvement to key elements / features of the baseline conditions such that post development character / composition of baseline condition will be fundamentally changed. For example, a major long-term alteration of socio-economic conditions
Moderate	Loss / improvement to one or more key elements / features of the baseline conditions such that post development character / composition of the baseline condition will be materially changed. For example, a moderate long-term alteration of socio-economic conditions.
Minor	Changes arising from the alteration will be detectable but not material; the underlying composition of the baseline condition will be similar to the pre-development situation. For example, a small alteration of the socio-economic conditions.
Negligible	Very little change from baseline conditions. Change is barely distinguishable, approximating to a “no change” situation.

6.15.5 Scope of Assessment

In terms of construction related effects, these will be based on dialogue with GreenPower, their technical consultants as well as drawing on the economic consultant’s own knowledge from other onshore wind farms in Scotland. Where required we will draw on case study evidence from RenewableUK research on the economic benefits of onshore wind farms. In order to calculate the economic effect of new jobs, the GVA per head for civil engineering related projects in Argyll and Bute and Scotland will be utilised. These figures will be sourced from the Scottish Annual Business Statistics. The economic impact assessment will also take displacement and multiplier effects into consideration to provide a net economic impact figure at the regional, national and UK levels.

In terms of operational effects, employment levels will be provided by GreenPower, and backed up with evidenced from RenewableUK modelling and assumptions. The employment impacts associated with the mature operation phase will be presented by occupation type. In order to calculate the economic effect of new jobs, the GVA per head for civil professional, scientific and technical work in Argyll and Bute and Scotland will be utilised. These figures are also drawn from the Scottish Annual Business Statistics and the resultant economic impact will be presented at the at Argyll and Bute and Scotland levels.

As noted in the construction phase, economic impact assessments must also consider the effects of displacement. For the Proposed Development, displacement levels are not expected to be as significant as the construction related activity and it is assumed that displacement would be low during the during operation and maintenance at both the regional and national levels. Multiplier effects will also be built into the economic

impact assessment, and these will be sourced from the Type II Output, Income, Employment and GVA Multipliers, produced by the Scottish Government.

In addition to the stated economic opportunities at the construction and operational phases, there is also a variety of wider economic impacts which are excluded from the construction and operational economic impact assessment. The wider impacts which should also be noted as having positive effects on the regional and national economies include:

- Supporting national, regional and local policy objectives;
- Local supply chain opportunities;
- Pre-development costs, such as consultancy fees and legal costs;
- Exchequer impacts;
- Perception benefits, promoting the area as a place to work and invest; and
- Community benefits, as inherent parts of or linked to the Proposed Development.

The link between renewable developments and the tourism sector is a subject of debate. However, the most recent research has not found a link between tourism employment, visitor numbers and renewable developments. For example, research completed by the Scottish Government found that there is no relationship between the development of onshore wind farms and tourism employment at the level of the Scottish economy, at the local authority level nor in the areas immediately surrounding developments.

6.15.5.1 Matters to be Scoped Out

The long-term impacts associated with the decommissioning phase of the Proposed Development are not assessed given the significant time lapse between planning and decommissioning phases.

6.15.6 Scoping Questions to Consultees

It is proposed that the following stakeholders will be consulted in relation to the assessment:

- Argyll and Bute Council (Access, Tourism and Economic Development Teams);
- VisitScotland (as national tourism lead body);
- Argyll & the Isles Tourism Co-operative Ltd (as the Destination Management Organisation (DMO) for tourism in Argyll and Bute)
- The Scottish Rights of Way and Access Society (ScotWays);
- Any local recreation, environmental and tourism groups.

The following questions are proposed:

- Do ECU, ABC and Statutory Consultees agree that the range of surveys carried out to date is sufficient and appropriate?
- Are the ECU, ABC and Statutory Consultees aware of any key sensitive receptors that should be taken into account?
- Are the ECU, THC, and Statutory Consultees aware of any particular consultees in the area who may wish to provide comment on the scope of this assessment?

6.16 Chapter 16 – Interactions

This Chapter is included to summarise the interrelationship between those considerations assessed during the EIA process and presented in the EIAR. It will include a matrix table indicating the significant interactions

and in combination effects that are likely to occur between the various environmental disciplines with regard to the proposed development.

The purpose of the table is to allow interaction between various disciplines to be recognised, although the level of interaction and in-combination effect will vary in each case. The Chapter will also include a summary of interactions however the assessment of effects will be undertaken and presented in preceding relevant Chapters.

7 SUMMARY & CONCLUSIONS

This Scoping Report is submitted to inform the EIA and associated Report which will accompany an application for consent to the ECU for the development of a wind farm and associated Battery Energy Storage System (BESS) facility with an installed capacity greater than 50MW but less than 100MW;

As a “Generating Station” the Proposed Development falls under the terms of Schedule 2 of The Electricity Works (Environmental Impact Assessment (Scotland) Regulations 2017 (the EIA Regulations).

In this instance the Applicant has not sought a Screening Opinion from the Scottish Ministers as to whether the Proposed Development is one to which Environmental Impact Assessment (EIA) applies. Rather, it is the Applicant’s intention to voluntarily submit an EIA Report (EIAR) in support of the emerging application.

The proposed EIA Scope is informed by ongoing baseline assessment as well as similar project experience. The Applicant, as owner and operator of the nearby Carraig Gheal Wind Farm, also has an intricate knowledge of the environmental baseline within the wider area surrounding the Barachander site.

The EIA Scope is proposed cognisant of the requirements of the EIA Regulations including Regulations 4 and Schedule 4.

This Scoping Report is now formally submitted to the ECU in accordance with Regulation 12 of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.

Appendix A – Scoping Layout and Figures

Appendix B – Local Planning History

END OF SCOPING REPORT

