

Appendix 2B

Scoping Report

RWE Renewables UK Onshore Wind Limited

Eredine Wind Farm Section 36 Application

Scoping Report 2



Report for

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Executive summary

Purpose of this report

This report sets out the proposed scope of the Environmental Impact Assessment (EIA) for the proposed Eredine Wind Farm (The 'Proposed Development'), the findings of which will be presented in an EIA Report. The purpose of this document is to serve as a formal request to the Scottish Ministers to provide a Scoping Opinion under Regulation 12 of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.

This scoping request will inform the EIA of a forthcoming planning application under Section 36 of the Electricity Act 1989 (as amended) for Section 36 consent and deemed planning permission to construct and operate Eredine Wind Farm. The Proposed Development would comprise up to 26 wind turbines with varying tip heights up to 230 metres, and an installed capacity in excess of 50 Megawatts.

This scoping report is an updated version of an earlier report which was submitted in June 2020 for turbines of up to 180m at the same site.

Summary Findings of the Scoping Report

The EIA will focus on any significant effects likely to arise during the construction, operation, and decommissioning of the Proposed Development. This Scoping Report draws on baseline information to identify where significant effects are likely as a result of the Proposed Development.

The following environmental topic areas are proposed to be included in the EIA:

- Noise (Chapter 6);
- Shadow flicker (Chapter 7);
- Landscape and Visual (Chapter 8);
- Historic Environment (Chapter 9);
- Ecology (Chapter 10);
- Ornithology (Chapter 11);
- Geology, Hydrology and Hydrogeology (Chapter 12);
- Traffic and Transport (Chapter 13);
- Socio-economics (Chapter 14);
- Infrastructure and Other Issues (Chapter 15); and
- Forestry (Chapter 16).

Contents

1.	Introduction	8
1.1	Overview	8
1.2	Contents of this Report	8
1.3	The Applicant	9
1.4	The Agent	9
1.5	Application/Project History	9
2.	Project Description	11
2.1	The Development Site	11
2.2	Historic and Current Development Site Uses	11
2.3	Development Description	11
3.	EIA Process and Consultation	14
3.1	EIA Overview	14
3.2	EIA Terminology	14
	Impacts and Effects	14
	Type of Effect	15
	Temporal and Spatial Scope	15
3.3	EIA Scoping	16
3.4	Cumulative Effects	18
3.5	Mitigation	18
3.6	EIA Methodology	18
3.7	Consultation	19
4.	Planning Policy Context	20
4.1	Introduction	20
4.2	Regulatory Framework	20
4.3	Scottish Planning Policy and Guidance	20
	National Planning Framework 3 (NPF3)	20
	Scottish Planning Policy (SPP)	20
	Draft Fourth National Planning Framework (NPF4)	21
4.4	Local Planning Policy and Guidance	21
	Local Development Plan	21
5.	Renewable Energy Policy, Carbon Balance and Peat Management	23
5.1	Introduction	23

5.2	Renewable Energy and Climate Change Policy Framework	23
5.3	Potential Contribution of the Proposed Development to Government Objectives	24
5.4	Carbon Balance Assessment	24
5.5	Peat Management	24
6.	Noise	25
6.1	Introduction	25
6.2	Baseline Conditions	25
6.3	Scope of Assessment	26
	Construction	26
	Operation	26
	Decommissioning	26
6.4	Assessment Methodology	27
7.	Shadow Flicker	29
7.1	Overview	29
8.	Landscape and Visual	30
8.1	Introduction	30
8.3	Baseline Conditions	32
8.4	Data Sources	33
8.5	Scope of Assessment	36
8.6	Assessment Methodology	49
9.	Historic Environment	56
9.1	Introduction	56
9.2	Relevant legislation, planning policy, technical guidance	56
	Planning policy context	56
	Legislation	58
	Technical guidance	58
9.3	Baseline Conditions	59
9.4	Consultation	59
9.5	Scope of Assessment	59
	Study area	59
	Potential receptors	60
	Likely significant effects	61
9.6	Assessment Methodology	61
	General approach	61
	Determination of significance	61
	Limitations	63
10.	Ecology	64
10.1	Introduction	64
10.2	Baseline Conditions	64

	Consultation	64
	Data Sources	64
	Desk-study	64
	Field Survey 2020	65
	Current Baseline	66
	Further Survey	67
10.3	Assessment Methodology	67
	Legislation, Policy and Guidance	67
	Methodology for Assessing Ecological Features	68
11.	Ornithology	70
11.1	Introduction	70
11.2	Baseline Conditions	70
	Consultation	70
	Desk Study	71
	Field Studies and Assessment	71
11.3	Scope of Assessment and Assessment Methodology	73
12.	Geology, Hydrology and Hydrogeology	75
12.1	Introduction	75
12.2	Baseline Conditions	75
	Data sources	75
	Current baseline	76
12.3	Scope of Assessment	81
	Potential receptors	81
	Likely significant effects	81
12.4	Assessment Methodology	85
13.	Traffic and Transport	86
13.1	Introduction	86
13.2	Scoping Opinion	86
	Transport Scotland	86
	Argyll and Bute Council	87
13.3	Baseline Conditions	87
	Data sources	87
	Current Baseline	87
13.4	Scope of Assessment	87
	Potential Receptors	88
	Likely Significant Effects	89
13.5	Assessment Methodology	89
	Determination of Significance	89
14.	Socio-economics	91
14.1	Introduction	91
14.2	Baseline Conditions	91
	Employment and Economy	91
	Tourism and Recreation	91
	Land Use	92
14.3	Scope of Assessment	92

14.4	Assessment Methodology	93
15.	Infrastructure and Other Issues	94
15.1	Introduction	94
15.2	Existing Infrastructure, Telecommunications and Broadcast Services	94
15.3	Aviation	94
15.4	Population and Human Health	94
15.5	Climate	95
15.6	Sustainable Resource Use	95
15.7	Major Accidents and Disasters	96
16.	Forestry	99
16.1	Introduction	99
16.2	Baseline Conditions	99
16.3	Scope of Assessment	100
16.4	Assessment Methodology	100
Table 2.1	Indicative Turbine Locations	12
Table 6.1	Operational, consented and subject to application wind farms	25
Table 8.1	Wind Farms relevant to the cumulative assessment	33
Table 8.2	Proposed LVIA Viewpoints	39
Table 8.3	Excluded LVIA Viewpoints (<i>accompanying wirelines on Figure 8.8a-h</i>)	43
Table 8.4	Likely significant landscape, visual and cumulative effects	47
Table 8.5	Evaluation of Landscape and Visual effects	52
Table 9.1	Planning policy issues relevant to historic environment	56
Table 9.2	Likely significant historic environment effects	61
Table 9.3	Establishing the importance of receptors	62
Table 9.4	Establishing the magnitude of change	63
Table 12.1	Sources of Desk Study Information for Geology, Hydrology (Including Flood Risk) and Hydrogeology	75
Table 12.2	Water Framework Directive Water Bodies within the Study Area	78
Table 12.3	Private Water Supplies within the Study Area	80
Table 12.4	Likely Significant Geology, Hydrology and Hydrogeology Effects	81
Table 13.1	Sources of information used for the Traffic and Transport assessment	87
Table 14.1	Top Five Free and Paid Visitor Attractions in Argyll and Bute in 2019.	92
Table 15.1	Major Accidents and Disasters	96
Appendix A	Figures	
Appendix B	2020 Scoping Opinion Summary	

1. Introduction

1.1 Overview

- 1.1.1 RWE Renewables UK Onshore Wind Limited (hereafter referred to as the “Applicant”) has identified a potential opportunity to develop a commercial scale wind farm in Argyll and Bute, to the south of the operational An Suidhe Wind Farm.
- 1.1.2 The proposed site (the “Development Site”) of Eredine Wind Farm (the “Proposed Development”) is located approximately 9 kilometres (km) to the west of Inveraray and approximately 17km north of Lochgilphead. The majority of the Development Site comprises commercial forestry situated in the Eredine Forest and is centred at National Grid Reference (NGR) E197330, N706490. **Figure 1.1** in **Appendix A** shows a site location map in the wider landscape; and **Figure 1.2** in **Appendix A** shows the Development Site boundary and indicative turbine locations.
- 1.1.3 The Applicant is proposing to submit a planning application under Section 36 of the Electricity Act 1989, as amended, seeking consent to construct and operate the Proposed Development, currently anticipated to comprise up to 26 wind turbines, with a generating capacity in excess of 50 Megawatts (MW), together with access tracks, crane hard standings, battery storage area, an electricity sub-station, at least one permanent anemometer mast and a temporary construction compound. An initial site layout will be developed to inform the preliminary environmental assessments and for the purpose of identifying scope, a maximum tip height of 230 metres (m) has been assumed.
- 1.1.4 The development falls under Schedule 2 of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the “EIA Regulations”) as a generating station (Schedule 2(1)). A Schedule 2 development constitutes EIA development if the development is likely to have significant effects on the environment by virtue of factors such as its nature, size or location as set out in Schedule 3 of the EIA Regulations.
- 1.1.5 In recognition of the scale and nature of the Proposed Development, the Applicant will undertake an EIA to assess potentially significant environmental effects. Under Section 36 of the Electricity Act 1989, as amended, the Proposed Development would require authorisation from the Scottish Ministers as it would be a power generating station in excess of 50 MW.

1.2 Contents of this Report

- 1.2.1 This report sets out the proposed scope of the EIA, which is to be submitted to the Scottish Ministers as a formal request for a scoping opinion. A scoping opinion is defined under the EIA Regulations as “an opinion adopted by the Scottish Ministers as to the scope and level of detail of information to be provided in the EIA Report”. The purpose of this Scoping Report is therefore to:
- Define the Proposed Development being considered (**Chapter 2**);
 - Describe the consenting and EIA requirements in relation to the Proposed Development (**Chapter 3** and **Chapter 4**); and
 - Outline the aspects of the Proposed Development that could potentially result in significant environmental effects (**Chapter 3**) and, where potentially significant effects may result, the methodologies that will be used to assess potential impacts (**Chapter 5 – 15**).

1.3 The Applicant

- 1.3.1 RWE Renewables produces electricity from renewable energy sources, and has become a “super player” in the field of renewables. RWE is the global number two in offshore wind, and has a goal to become climate-neutral by 2040. In order to achieve this goal, it is reducing its carbon dioxide (CO₂) emissions as quickly and drastically as possible, by phasing out or converting conventional power plants. RWE has already cut its greenhouse gas emissions by 60 million tonnes of CO₂ between 2012 and 2018, resulting in a 33 per cent reduction. No other company in Germany has achieved more in the last few years and RWE is determined to continue this.
- 1.3.2 Together, RWE’s employees drive forward new, innovative technologies and implement exciting projects. RWE is planning to invest billions of pounds net annually in expanding renewables (with an expectation the market can match fund its own similar levels of investment as well) and developing storage technologies. RWE is focusing on the American continent, the European core markets such as the UK, as well as new markets in Asia-Pacific. RWE has plenty of projects in the pipeline, spanning all technologies including offshore and onshore wind, as well as photovoltaics. RWE is currently building the largest European onshore wind farm in Sweden and the largest solar power plant in Australia.

1.4 The Agent

- 1.4.1 Wood Group UK Limited, part of the international Wood brand supplying consultancy, engineering and project management services across the globe, has been commissioned to prepare this Scoping Report.
- 1.4.2 Wood includes one of the UK’s largest multidisciplinary environmental and engineering consultancies within the Environment & Infrastructure Solutions UK business (previously Amec Foster Wheeler, Amec and Entec UK prior to acquisitions) and operates from 12 office locations. With skills ranging from development planning and design through an array of environmental and engineering disciplines, Wood has a comprehensive service portfolio and applied experience in a wide range of markets.
- 1.4.3 The EIA will be carried out by Wood to standards that comply with quality standards identified by the Institute of Environmental Management and Assessment (IEMA). The EIA Quality Mark scheme was introduced in 2011 and Wood (through its previous entities Amec Foster Wheeler, Amec and Entec UK) was a founder member, holding continuous membership since then. Each year, Wood is required to show that it meets seven commitments relating to EIA management, team capabilities, regulatory compliance, EIA context and influence, EIA content, and improving EIA practice. Wood’s approach to these matters is examined by IEMA through several methods, including reviewing EIA reports Wood produces, interviewing staff, and publishing case studies provided for IEMA and presentations made at conferences.
- 1.4.4 Wood requests a ‘*Scoping Opinion*’ from the Scottish Ministers in relation to a proposal to construct and operate a wind farm of up to 26 wind turbines and an anticipated capacity in excess of 50MW.

1.5 Application/Project History

- 1.5.1 The previous scoping report, submitted in June, 2020¹, assumed a maximum tip height of 180m turbines, in order to inform the preliminary environmental assessments and for the purpose of

¹ Document reference 42484-WOOD-XX-XX-RP-J-0002_S0_P01.1

identifying scope. **Appendix B** provides a summary of the consultation responses received in response to this report and provides a summary of how issues identified will be addressed

- 1.5.2 Due to recent technological advancements, however, and in line with governmental climate change targets, the Applicant has revised the maximum tip height, to account for up to 230m. RWE have also during this time been reviewing access to the site using these larger wind turbines components and reviewing the economics of the project in light of recent changes within the energy market.
- 1.5.3 As the Applicant hopes to make a Section 36 application in Q1 2023, the submission of a revised version of the scoping report is, therefore, required.
- 1.5.4 Due to the extension of the maximum tip height of up to 50m for each of the proposed 26 turbines at the Proposed Development, this new scoping report takes into consideration additional likely significant impacts and associated mitigation measures, as a result of the larger turbines. This report also provides updated guidance, legislative and baseline information where appropriate.

2. Project Description

2.1 The Development Site

- 2.1.1 The Development Site (centred at National Grid Reference E197330, N706490 and shown on **Figure 1.1** in **Appendix A**) for the Proposed Development is located approximately 9km west of Inveraray and approximately 17km to the north of Lochgilphead in Argyll and Bute.
- 2.1.2 The Development Site lies on land between Loch Awe to the west and Loch Fyne to the east. The B840 runs in a south west – north east direction to the west of the Development Site, connecting the A816 to the south west with the A819 to the north east. The A83 runs in a similar direction, to the east of the Development site, connecting the aforementioned settlements of Lochgilphead and Inveraray. The operational An Suidhe Wind Farm is located to the north of the Development Site, and A'Chruach Wind Farm is located to the south of the Development Site, within Kilmichael Forest.
- 2.1.3 The Development Site lies on upland, and extends to approximately 4,268 hectares (ha), although the wind farm infrastructure would occupy only a small part of the overall Development Site, with the potential wind farm area being investigated approximately 2,378ha in area, with the footprint of any eventual wind farm being a very small proportion of this area. The majority of the Development Site is used for commercial forestry operations, within Eredine Forest (western area of the Development Site) and Brenchoillie Forest (eastern area of the Development Site).
- 2.1.4 The elevation of the Development Site is between 50m and 482m Above Ordnance Datum (AOD), with the topography being characterised by five summits, Beinn Dearg, Beinn Dubh Àirigh, Beinn Laoigh, Beinn Mheadhon, and Garbh Chruach. The highest of these is Beinn Dearg at 476m AOD.
- 2.1.5 The Development Site access will be the existing An Suidhe wind farm access, east of the site, then via an access track through the forest block here, eventually running to the east of An Suidhe and into the wind farm area being investigated.
- 2.1.6 The nearest residential property is Killean Farmhouse, which is located adjacent to the site boundary where it joins the A38 to the east. Killean Farmhouse is located approximately 5.5km to the east of the main part of the Development Site and approximately 2.01km away from the wind farm area.

2.2 Historic and Current Development Site Uses

- 2.2.1 The Development Site is owned by one landowner (Forestry Land Scotland) and mainly comprises commercial forestry.

2.3 Development Description

- 2.3.1 The Proposed Development would comprise the following main elements:
- Up to 26 wind turbines with tip heights up to 230m;
 - Access tracks connecting infrastructure elements;
 - A small expansion of the existing vehicular access point from the public highway;
 - Hard standing areas e.g. crane pads;

- Potential borrow pit(s);
- At least one anemometer mast;
- A battery storage area;
- Temporary working areas e.g. construction compound; and
- Control building and substation, and electrical cabling between this and the turbines.

2.3.2 The indicative turbine locations are shown in **Table 2.1** and are shown on **Figure 1.2** in **Appendix A**.

Table 2.1 Indicative Turbine Locations

Component	Maximum Height (m)	Location (NGR)
Turbine 1	230	E 200278, N 704301
Turbine 2	230	E 200299, N 705291
Turbine 3	230	E 200377, N 704807
Turbine 4	230	E 201188, N 704917
Turbine 5	230	E 200349, N 705855
Turbine 6	230	E 199694, N 705535
Turbine 7	230	E 201289, N 705723
Turbine 8	230	E 201969, N 705651
Turbine 9	230	E 198800, N 705007
Turbine 10	230	E 198942, N 705561
Turbine 11	230	E 199064, N 704037
Turbine 12	230	E 196702, N 701766
Turbine 13	230	E 197845, N 702884
Turbine 14	230	E 197362, N702269
Turbine 15	230	E 196296, N 703513
Turbine 16	230	E 198165, N 705378
Turbine 17	230	E 198790, N 706059
Turbine 18	230	E 198033, N 705866
Turbine 19	230	E 198353, N 706546
Turbine 20	230	E 199633, N 704509
Turbine 21	230	E 198876, N 704504
Turbine 22	230	E 199643, N 705002
Turbine 23	230	E 199202, N 703553

Component	Maximum Height (m)	Location (NGR)
Turbine 24	230	E 198469, N 703251
Turbine 25	230	N 197112, E 704512
Turbine 26	230	N 196744, E 704000

3. EIA Process and Consultation

3.1 EIA Overview

- 3.1.1 EIA is a systematic process that must be followed for certain categories of project before they can receive development consent. It aims to identify a project's likely significant effects through the scoping process, and then assess those effects in an EIA Report. This helps to ensure that the importance of the predicted effects, and the scope for mitigation measures to reduce them, are properly understood by the public and, in this instance, the Scottish Ministers before they make their decision.
- 3.1.2 The EIA process should be systematic, analytical, impartial, consultative and iterative, allowing opportunities for environmental concerns to be addressed in the design of a project. Typically, a number of design iterations take place in response to environmental constraints identified during the EIA process prior to the final design being reached.
- 3.1.3 The EIA should be based upon recognised good practice and guidelines specific to each technical area and identify the likely significant environmental effects arising from a proposed development. Consultees are also encouraged to provide confirmation of agreement to the proposed scope in terms of what is included and excluded, the methodology, and the receptors identified.

3.2 EIA Terminology

Impacts and Effects

- 3.2.1 EIA is concerned with the identification of likely significant effects on the environment. However, the terms *impact* and *effect* are often used synonymously and this can lead to confusion. For clarity, the convention used in this report is to use 'impacts' within the context of the term EIA, which describes the process from scoping through EIA Report preparation to subsequent monitoring and other work. Otherwise, this document uses the word 'effects' when describing the environmental consequences of the Proposed Development. For example, such effects may come about as a result of the following:
- Physical activities that would take place if the development were to proceed (e.g. vehicle movements during construction operations); and
 - Environmental changes that are predicted to occur as a result of these activities (e.g. loss of vegetation prior to the start of construction work or an increase in noise levels). In some cases one change causes another change, which in turn results in an environmental effect.
- 3.2.2 The predicted environmental effects are the consequences of the environmental changes for specific environmental receptors. For example, with respect to bats, the loss of roosting sites or foraging areas could affect the bats' population size; with regard to people, an increase in noise levels could affect amenity.
- 3.2.3 This report is concerned with assessing the significance of the environmental effects of the Proposed Development, rather than the activities or changes that cause them. However, this requires these activities to be understood and the resultant changes identified; often based on predictive assessment work.

Type of Effect

- 3.2.4 The 2017 EIA Regulations (Schedule 4, Part 5) require consideration of a variety of types of effect, namely direct and indirect, secondary, cumulative, positive and negative, short, medium and long-term, and permanent and temporary. In the EIA Report that will follow this Scoping Report, effects are considered in terms of how they arise, their nature (i.e. whether they are positive or negative) and duration. Each will have a source originating from the development, a pathway and a receptor and may fall into one of several categories:
- Direct effects are readily identified because of the physical connection between some element of the development and an affected receptor;
 - Indirect effects require some additional pathway for the effect to arise. For example, a listed building may not be directly affected by any elements of a development, but its setting may be if the development is visible in views from it or when looking towards it; in which case there would be an indirect effect;
 - Secondary effects would typically require further pathway connections, for example, an effect on a receptor population (A) could have a secondary effect on receptor population B, if B was itself dependent on A in some way, as, for example, a food source; and
 - Cumulative effects arise when the receptors affected by one development are also affected by other developments resulting in the aggregation of environmental effects or the interaction of impacts.
- 3.2.5 Most predicted effects will be obviously positive or negative and will be described as such. However, in some cases it is appropriate to identify that the interpretation of a change is a matter of personal opinion, and such effects will be described as 'subjective'.

Temporal and Spatial Scope

- 3.2.6 In its broadest sense, the spatial scope is the area over which changes to the environment would occur as a consequence of the development. In practice, an EIA should focus on those areas where these effects are likely to be significant.
- 3.2.7 The spatial scope varies between environmental topic areas. For example, the effect of a proposed development on the landscape resource and visual amenity is generally assessed within a zone of up to 35km from the wind turbines (and potentially up to 70km for cumulative effects), whilst noise effects are assessed within a much smaller area encompassing those representative properties close to a development site.
- 3.2.8 The temporal scope is stated where known and effects are typically described as:
- Temporary – likely to be related to a particular activity and will cease when the activity finishes. The terms 'short-term' and 'long-term' may also be used to provide a further indication of how long the effect will be experienced; and
 - Permanent – this typically means an unrecoverable change.
- 3.2.9 Effects are generally considered in relation to the following key stages of a proposed development:
- Construction – the effects may arise from the construction activities themselves, or from the temporary occupation of land. Effects are often of limited duration although there is potential for permanent effects. Where construction activities create permanent change, the effects will continue into the operational period;

- Operation – effects may be permanent, or they may be temporary, intermittent, or limited to the life of a proposed development until decommissioning (as in the case of wind power developments which gain planning permission for a defined and finite number of years); and
- Decommissioning – effects may arise from the decommissioning activities themselves, or from the temporary occupation of land. The effects would generally be temporary and of limited duration. Additional permanent change would normally be unlikely unless associated with restoration.

3.3 EIA Scoping

3.3.1 The results of the EIA process are reported in an EIA Report and Schedule 4(4) of the EIA Regulations specifies that it should describe:

"... the factors... likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape."

3.3.2 Regulation 4(2) of the EIA Regulations requires the interaction between these factors to be considered. In addition, Regulation 4(4) requires EIA Reports to consider:

"... the expected effects deriving from the vulnerability of the development to risks, so far as relevant to the development, of major accidents and disasters."

3.3.3 Establishing which aspects of the environment are likely to be significantly affected by a particular project is captured in the EIA scoping process, which aims to identify those aspects of the environment and associated issues that need to be considered when assessing the potential effects resulting from a proposed development. This recognises that there may be some environmental elements for which the project is unlikely to have a significant effect and hence where there is no need for further investigation to be undertaken as part of the EIA.

3.3.4 The proposed scope of the EIA for the Proposed Development with respect to the following environmental topics is set out in Chapters 6 to 15 of this report and comprises:

- Noise (Chapter 6);
- Shadow Flicker (Chapter 7);
- Landscape and Visual (Chapter 8);
- Historic Environment (Chapter 9);
- Ecology (Chapter 10);
- Ornithology (Chapter 11);
- Geology, Hydrology and Hydrogeology (Chapter 12);
- Traffic and Transport (Chapter 13);
- Socio-economics (Chapter 14);
- Infrastructure and Other Issues (Chapter 15); and
- Forestry (Chapter 16).

3.3.5

The scope and assessment methodologies proposed in this Scoping Report are based on recognised good practice and guidelines specific to each topic area. Baseline conditions have been determined through desk-based studies and survey work undertaken to date. The environmental topic chapters identify where significant effects are anticipated as a result of the Proposed Development and take into account:

- The baseline data;
- The description of the Proposed Development;
- Relevant guidance on assessment methodologies; and
- Any cumulative effects, which may arise.

3.4 Cumulative Effects

- 3.4.1 Cumulative effects can arise from the interaction between a proposed development and other developments already built or proposed. In line with standard practice, for the purpose of the EIA, other wind farm developments which are operational, subject to planning approval or subject to a full and validated planning application will be included in the consideration of potential cumulative effects (subject to a cut-off point to allow assessments to be undertaken). It should be noted that not all of the cumulative developments would necessarily have a cumulative effect in respect of any particular environmental topic.

3.5 Mitigation

- 3.5.1 Some mitigation measures to avoid, reduce or offset the consequences of the Proposed Development would be embedded within its design whilst others may require adherence to particular constraints on construction methodology or mode of operation. The final assessment of significance will take into account the mitigation measures and constraints that have been incorporated into the Proposed Development (i.e. it will be the assessment of residual effects).
- 3.5.2 It is likely that the following draft management plans will be submitted as part of the EIA or to discharge a post-consent condition:
- Construction Environmental Management Plan (CEMP);
 - Habitat Management Plan (HMP) and Species Protection Plan;
 - Peat Management Plan (PMP); and
 - Traffic Management Plan (TMP).

3.6 EIA Methodology

- 3.6.1 The EIA Report will identify the assessment methodologies, based on recognised good practice and guidelines specific to each of the relevant environmental topic areas where the Proposed Development could result in significant effects. In general terms, the technical studies undertaken for each topic area and chapter included in the EIA Report to accompany the planning application would include:
- Collection and collation of existing baseline information about the receiving environment and surveys to fill any gaps in knowledge or to update any historic information, together with identification of any relevant trends in, or evolution of, the baseline;
 - Consultation with experts and relevant consultees as necessary;
 - Consideration of the potential effects of the Proposed Development on the baseline, followed by identification of any additional mitigation measures to seek to avoid or reduce any predicted adverse effects;
 - Assessment and evaluation of any residual significant effects after mitigation measures have been implemented; and
 - Compilation of the EIA Report chapter.

3.7 Consultation

- 3.7.1 Consultation is an essential element of the EIA process and will be reported within the EIA Report and supporting documentation as necessary.
- 3.7.2 The Applicant is committed to promoting dialogue with statutory and non-statutory consultees and the local community, seeking to engage with all those with an interest in the Proposed Development to provide transparency during the process.

4. Planning Policy Context

4.1 Introduction

- 4.1.1 The EIA will be progressed taking account of applicable legislation, policy and guidance. This chapter of the EIA Report will outline the planning policy framework followed by an overview of further legislation, policy and guidance pertinent to the Proposed Development.
- 4.1.2 The Section 36 application will be accompanied by a Planning Statement, which will set out the planning case for the Proposed Development with regards to national and local policies and other material considerations.

4.2 Regulatory Framework

- 4.2.1 The application for the Proposed Development would be made pursuant to Section 36 of the Electricity Act 1989 (as amended), as a generating station with capacity exceeding 50 MW.
- 4.2.2 The EIA Regulations provide the requirements for undertaking EIAs for developments to be consented under the Electricity Act 1989 (as amended). The EIA Report would be prepared in accordance with Schedule 4 of the Regulations.

4.3 Scottish Planning Policy and Guidance

- 4.3.1 There are legal, policy and advice documents which would be material considerations in the determination of the Section 36 application for the Proposed Development, including those noted in the following sections:

National Planning Framework 3 (NPF3)

- 4.3.2 NPF3 (June 2014) provides the statutory framework for Scotland's long term spatial development. It sets out the Scottish Government's spatial development priorities over a 20 to 30 year period and what is expected of the planning system and the outcomes it must deliver. NPF3 reaffirmed the Scottish Government's commitment, at the time of publication, to renewable energy targets (30% of overall energy demand from renewable sources by 2020) and recognises the important role of onshore wind in achieving these targets. The Framework supports the deployment of appropriately located onshore wind energy development. It should be noted that preparation of NPF4 is underway.

Scottish Planning Policy (SPP)

- 4.3.3 SPP (June 2014) sets out national planning policies that reflect the priorities of the Scottish Ministers for the operation of the planning system and the development and use of land through sustainable economic growth. The SPP recognises that renewable energy generation including onshore wind will contribute to more secure and diverse energy supplies and support sustainable economic growth. The commitment to increase the amount of electricity generated from renewable sources including onshore wind is a vital part of the response to climate change. It should be noted that the Scottish Government is currently undertaking a process to reform the planning policy and the next version of SPP will be incorporated into the NPF, and will form part of the statutory development plan.

Draft Fourth National Planning Framework (NPF4)

- 4.3.4 NPF4 is a long term plan looking to 2045 that will guide spatial development, set out national planning policies, designate national developments and highlight regional spatial priorities. It will be part of the statutory development plan, and so influence planning decisions across Scotland. In addition NPF4 will incorporate updated SPP.
- 4.3.5 The Draft NPF4 was laid in Parliament on 10 November 2021 and consultation closed on 31 March 2022. Following the Parliamentary scrutiny process, the responses will be analysed and a final NPF4 produced. The current NPF3 and SPP, both published in 2014, will remain in place until NPF4 is adopted by Scottish Ministers.
- 4.3.6 National planning policy is supported by Planning Circulars, Planning Advice Notes (PANs) and Specific Advice Sheets and Ministerial / Chief Planning Letters to Planning Authorities, which set out detailed advice from the Scottish Government in relation to a number of planning issues. The PANs and Specific Advice Sheets considered relevant to the Proposed Development include:
- PAN 1/2011 Planning and Noise, March 2011;
 - PAN 2/2011 Planning and Archaeology, July 2011;
 - PAN 3/2010 Community Engagement, August 2010;
 - PAN 51 Planning, Environmental Protection and Regulation, October 2006;
 - PAN 60 Natural Heritage, January 2000;
 - PAN 61 Sustainable Urban Drainage Systems, July 2001;
 - PAN 75 Planning for Transport, August 2005;
 - PAN 79 Water and Drainage, September 2006;
 - Scottish Government's Control of Woodland Removal Policy, February 2019;
 - UK Forestry Standard, June 2021;
 - Wind Farm Developments on Peat Land, May 2013;
 - Specific Advice Sheet: Guidance on Developments on Peat Land: Peatland Survey, 2017;
 - Specific Advice Sheet (updated 28 May 2014): Onshore Wind Turbines;
 - Spatial Planning for Onshore Wind Turbines – Natural Heritage Considerations, June 2015; and
 - Chief Planner Letter regarding Energy Targets and Scottish Planning Policy, 2015.

4.4 Local Planning Policy and Guidance

Local Development Plan

- 4.4.1 In considering the overall legal framework within which the Proposed Development would be assessed, the Development Plan should be a key consideration. However, Section 25 of the Town and Country Planning (Scotland) Act 1997, as amended by The Planning etc. (Scotland) Act 2006, is not engaged for applications pursuant to Section 36 of the Electricity Act 1989 (i.e. the development plan does not take primacy in the determination process).

- 4.4.2 The current Development Plan is the Argyll and Bute Local Development Plan (LDP), adopted on 26th March 2015, Local Development Plan Supplementary Guidance, March 2015 and Local Development Plan Supplementary Guidance 2, December 2016.
- 4.4.3 It is considered the applicable policies of the LDP are:
- Policy LDP 3 – Supporting the Protection, Conservation and Enhancement of our Environment;
 - Policy LDP 5 – Supporting the Sustainable Growth of Our Economy;
 - Policy LDP 6 – Supporting the Sustainable Growth of Renewables;
 - Policy LDP 9 – Development Setting, Layout and Design;
 - Policy LDP 10 – Maximising our Resources and Reducing Our Consumption; and
 - Policy LDP11 – Improving our Connectivity and Infrastructure.
- 4.4.4 There are a number of applicable policies in the LDP Supplementary Guidance, in particular Renewable Energy which forms part of LDP Supplementary Guidance 2, December 2016.
- 4.4.5 Argyll and Bute Council (ABC) are in the process of preparing a new Local Development Plan (LDP2) which will replace the current LDP. The proposed plan and all unresolved representations have now been submitted to the Scottish Government for Examination. The Examination is expected to be completed by October 2022, with an anticipated date for Adoption of LDP2 in January 2023.
- 4.4.6 It is considered the applicable draft policies of the Proposed LDP2 are:
- Draft Policy 04 – Sustainable Development;
 - Draft Policy 05 – Design and Placemaking;
 - Draft Policy 06 – Green Infrastructure;
 - Draft Policy 08 – Sustainable Siting;
 - Draft Policy 15 – Supporting the Protection, Conservation and Enhancement of Our Historic Built Environment;
 - Draft Policy 30 – The Sustainable Growth of Renewables;
 - Draft Policy 73 – Development Impact on Habitats, Species and Biodiversity;
 - Draft Policy 77 – Forestry, Woodland and Trees;
 - Draft Policy 78 – Woodland Removal; and
 - Draft Policy 79 – Protection of Soil and Peat Resources.

Other Applicable Plans and Policies

- 4.4.7 It is considered the following documents are also applicable to the Proposed Development:
- Argyll and Bute Landscape Wind Energy Capacity Study, 2017;
 - Argyll and Bute Council Woodland and Forestry Strategy, April 2011; and
 - Argyll and Bute Renewable Alliance Renewable Energy Action Plan 2018/19.

5. Renewable Energy Policy, Carbon Balance and Peat Management

5.1 Introduction

- 5.1.1 The EIA will be progressed taking account of applicable legislation, policy and guidance in relation to renewable energy. This section of the EIA Report will set out the policy and energy target context for renewable energy projects from a European, UK and Scottish perspective as well as providing the carbon balance assessment.

5.2 Renewable Energy and Climate Change Policy Framework

- 5.2.1 The following legislation and policy are relevant to the Proposed Development and would be considered in the EIA Report:

- Climate Change (Emissions Reduction Targets) (Scotland) Act 2019;
- The Renewable Energy Directive (2009/28/EC);
- The EU 2030 Climate & Energy Policy Framework;
- Climate Change (Scotland) Act 2009;
- Low Carbon Economic Strategy for Scotland 2010;
- Low Carbon Scotland – Meeting the Emissions Reductions Targets 2013-2027;
- The Scottish Government Renewables Action Plan June 2009 (latest update March 2011);
- Electricity Generation Policy Statement 2013;
- 2020 Renewables Routemap June 2011 (latest update September 2015);
- Intended Nationally Determined Contributions of the EU and its Member States (2015)
- The Chief Planner Letter to all Heads of Planning (2015);
- The COP21 Paris Agreement (2015);
- The Fifth Carbon Budget (2016);
- The UK Industrial Strategy (2017);
- The UK Clean Growth Strategy (2017);
- The Scottish Energy Strategy 2017;
- Onshore Wind Policy Statement 2017;
- Special Report on Global Warming of 1.5°C (2018); Climate Change Plan 2018;
- Energy Statistics for Scotland – Q4 2020 Figures, 2021;
- 2030 Clean Energy Package;
- AR6 Climate Change 2021: The Physical Science Basis (2021);

- The Sixth Carbon Budget (December 2020); Scottish Government Climate Change Adaptation Programme: Second Progress Report, 2021;
- Climate Ready Scotland: Climate Change Adaptation Programme 2019 – 2024;
- Low Carbon Scotland: Climate Change Plan – Third Report on Proposals and Policies 2018-2032;
- Protecting Scotland's Future: the Government's Programme for Scotland 2020-2021;
- Draft Peatland and Energy Policy Statement (2016);
- Guidance on developments on Peatland, (2017);
- Scottish Historic Environment Policy (April 2019);
- COP 26: The Glasgow Climate Pact, 2021; Carbon calculator for wind farms on Scottish peatland: factsheet, February 2022; and
- Proposed electricity generation developments: peat landslide hazard best practice guide, April 2017.

5.3 Potential Contribution of the Proposed Development to Government Objectives

- 5.3.1 The Scottish and UK legislative and policy framework on climate change is shaped by international climate change legislation. This incorporates binding targets in the reduction of greenhouse gas emissions and in the generation of energy from renewable sources.
- 5.3.2 In 2019, the Scottish Government amended the Climate Change (Scotland) Act 2009 through the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019. The 2019 Act seeks to ensure Scotland achieves its ambition to reduce greenhouse gas emissions to a net-zero state by 2045. In order to achieve this ambition, Scotland will need considerably more renewable energy projects.
- 5.3.3 The Proposed Development would make an important and substantial contribution to achieving multiple existing targets regarding the deployment of renewable energy technologies and greenhouse gas emissions reduction in pursuit of climate change mitigation.

5.4 Carbon Balance Assessment

- 5.4.1 A carbon balance assessment would be undertaken using the most up to date version of the Scottish Government Windfarm Carbon Calculator Tool, currently v1.6.1 (June 2020).

5.5 Peat Management

- 5.5.1 Comprehensive peat probing surveys would be carried out to ascertain the extent of peat across the site, and inform a Peat Management Plan and peat landslide risk assessment. The Peat Management Plan and peat slide risk assessment would be undertaken to inform the EIA.

6. Noise

6.1 Introduction

- 6.1.1 The proposed scope of the noise assessment would consist of the assessment of construction and operational noise for the Proposed Development, including cumulative noise impacts from other relevant developments in the area such as the neighbouring An Suidhe Wind Farm.
- 6.1.2 This section seeks agreement from the Environmental Health Representative at Argyll and Bute Council (ABC) on the proposed approach to the assessment.

6.2 Baseline Conditions

- 6.2.1 The Development Site is located in a rural area with the most notable likely noise sources to be occasional traffic on the B840 (approximately 2 km from the centre of the Development Site) and the A83 (approximately 6.5 km from the centre of the Development Site). There have been no recent surveys undertaken to quantify baseline conditions. If required as a result of initial screening assessments (see 6.3.4), a programme of baseline measurements will be taken to inform the EIA, as outlined in Section 6.3.
- 6.2.2 Review of the Development Site using current Aerial Photography has identified five potential representative sensitive receptors that would be considered within the EIA. Gallanach has been added as an additional receptor as a result of comments received from ABC in relation to the 2020 scoping report:
- Braevallich;
 - Village of Eredine;
 - Killeen Farmhouse;
 - Brenachaille; and
 - Gallanach.
- 6.2.3 Receptors may be changed, or others added to this list if modelling identifies that this initial list is not providing sufficient representation of noise impacts. There are various operational, consented and subject to application wind farms within 5 km of the Development Site, presented in **Table 6.1**.

Table 6.1 Operational, consented and subject to application wind farms

Wind Farm	Power	Distance (km)	Status
An Suidhe	9 Turbines 8.1 MW	0.9	Operational
A'Chruach	21 Turbines 42.6 MW	4.0	Operational
A'Chruach Extension	3 Turbines 6.15 MW	4.9	Consented
Blarghour Wind Farm	17 Turbines 58 MW	7.5	Consented

6.3 Scope of Assessment

Construction

- 6.3.1 Whilst the Development Site will be at a large distance from residential receptors, they could potentially be disturbed by noise if impact piling or blasting are required for construction of the Proposed Development. Only these aspects of construction would be scoped into an assessment of noise directly from site works with other activities onsite very unlikely to result in adverse effects. Heavy vehicles for deliveries and large mobile items of plant are anticipated along the local road system. These vehicles could pass closely to residences, which would otherwise experience low levels of road traffic noise. Therefore, construction road traffic is proposed to be scoped into the assessment.
- 6.3.2 Due to the distances involved vibration from onsite plant would have no effect on the nearest residences to the Development Site and therefore most direct vibration effects from the construction would be scoped out of further assessment. The exception would be vibration resulting from blasting which would be scoped into the assessment. Heavy vehicle traffic could result in adverse ground borne vibration effects due to the proximity of residences to roads and will be considered within the assessment.

Operation

- 6.3.3 When operational, wind turbines emit two types of noise – mechanical noise and aerodynamic noise. The main sources of mechanical noise are from internal components housed within the nacelle, such as the gearbox and generator. Mechanical noise from a modern wind turbine is negligible, as the nacelles are insulated to reduce noise emissions and the various mechanical components housed within the nacelle are acoustically isolated to prevent structure-borne noise.
- 6.3.4 Aerodynamic noise occurs from the movement of the blades passing through the air. At higher wind speeds, aerodynamic noise is usually masked by the increasing sound of wind blowing through trees and around buildings. The level of masking determines the perceived audibility of the wind farm. The proposed impact assessment establishes the relationship between wind turbine noise and the natural masking of noise resulting from features of the surrounding environment and assesses noise levels against established standards. The scoping in of a full operational noise assessment will be dependent on an initial screening assessment based on exceedances of the 35 dB L_{A90} daytime limit of ETSU-R-97. If a full noise assessment was not deemed to be required, the screening assessment would be included within the EIA Report.
- 6.3.5 It is proposed that operational traffic noise during the operation of the Proposed Development is scoped out as the amount of traffic associated with operation would be minimal.

Decommissioning

- 6.3.6 In terms of noise and vibration impacts during decommissioning, the effects on any sensitive receptors are likely to be similar in nature, but of lower magnitude, than those during the construction phase. As a result, it is not proposed to assess the decommissioning phase of the Proposed Development in addition to that of the construction phase. Therefore, the decommissioning element has been scoped out.

6.4 Assessment Methodology

- 6.4.1 The main objective of the noise assessment is to compare current noise levels in the Development Site area to those that would pertain should the Proposed Development proceed and to determine acceptability for relevant receptors. In this case relevant receptors are considered to be restricted to those living in residential property close to elements of the Proposed Development. The EIA Report Chapter will present a review of relevant policy and how it guides the assessment, the results of noise measurements, and finally the assessment of the noise predictions against the noise limits.

Construction Noise

- 6.4.2 Should impact piling be potentially used on site, a worst-case scenario for construction noise assessment, based upon experience of similar projects, will be presented in the EIA Report. Construction noise from piling would be predicted and assessed in accordance with 5228-1:2009 + A1:2014 *Code of practice for noise and vibration control on construction and open sites Part 1 – Noise*. Similarly, any blasting requirements would be unlikely to be known at the stage of submission and would be considered qualitatively, controlled via a blasting management plan as part of a planning condition requirement.
- 6.4.3 The impact of construction traffic along the local road system would be predicted using *Calculation of Road Traffic Noise* (1988) and assessed using the magnitude criteria within the *Design Manual For Roads and Bridges* (2020). The impact of construction traffic along the site access route and the interim access track will be predicted and assessed in accordance with BS 5228-1:2009 + A1:2014.
- 6.4.4 In most cases, construction noise (including construction traffic) is controlled through the implementation of mitigation measures (such as limiting hours during which construction can be undertaken) and undertaking construction works in accordance with good practices as described in BS 5228-1:2009 + A1:2014 (such as using well maintained and serviced plant, and the appointment of a Site contact to whom complaints/queries can be directed).

Operational Noise

- 6.4.5 The proposed operational noise assessment would be undertaken in accordance with *ETSU-R-97: The Assessment and Rating of Noise from Wind Farm* (ETSU-R-97 Guidance, 1996) and the assessment methodology advocated within the Institute of Acoustics *A Good Practice Guide to Applications of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise* (IoA GPG, 2013).
- 6.4.6 The ETSU Guidance advises that any noise restrictions placed on a wind farm must balance its environmental impact against the national and global benefits that would arise through the development of renewable energy sources:
- 6.4.7 *"The planning system must therefore seek to control the environmental impacts from a wind farm whilst at the same time recognising the national and global benefits that would arise through the development of renewable energy sources and not be so severe that wind farm development is unduly stifled."*
- 6.4.8 If the screening described in paragraph 6.3.4 identifies a need for a full ETSU-R-97 assessment, an understanding of the change in background noise levels with wind speed at receptors is required to provide the necessary criteria. This is achieved by monitoring background noise levels at sensitive receptors and simultaneously measuring the variation in wind speed and direction at the Development Site, using either a >50m met mast with anemometers at dual heights, or by a LiDAR or SoDAR system. Noise and wind speed measurements are taken as a series of simultaneous ten-minute averaged measurements, over a period of at least two weeks. From this data, regression

analysis is performed to determine typical background noise levels for each receptor across a range of wind speeds (4 m/s – 12 m/s).

- 6.4.9 Noise limits are defined separately for daytime and night-time. During quiet daytime periods (18:00 – 23:00 weekdays, 13:00 – 23:00 Saturdays and 07:00 – 23:00 Sundays), noise limits are as follows:
- 5 dB above the background noise curve for wind speeds up to 12 m/s;
 - where background noise levels are below 30 – 35 dB $L_{A90, 10 \text{ min}}$, the lower limit should be fixed at 35 – 40 dB; and
 - For properties with a financial interest in the scheme, the lower limit is fixed at 45 dB.
- 6.4.10 For night-time periods (23:00 – 07:00 every day), noise limits are as follows:
- 5 dB above the background noise curve for wind speeds up to 12 m/s;
 - The lower limit is fixed at 43 dB; and
 - For properties with a financial interest in the scheme, the lower limit is fixed at 45 dB.
- 6.4.11 A study area will be identified to carry out the noise monitoring survey work to inform a baseline for the noise assessment. Initial investigations have identified five locations representative of receptors from where noise monitoring is proposed (subject to landowner agreement where this is private property). These properties are considered to be the closest to the Development Site and give a good reflection of the local area and therefore the background noise levels for the local area. The properties would be as listed in paragraph 6.2.2.
- 6.4.12 **Figure 6.1 in Appendix A** sets out the location of the noise monitoring locations. Measurements at the chosen monitoring locations will depend upon arranging access to the properties. We request that these locations are considered by the Argyll and Bute Council Environmental Health Representative and, if necessary, we would welcome the suggestion of alternatives where appropriate.
- 6.4.13 Noise modelling would be undertaken using software adopting methodologies advocated by the Institute of Acoustics Good Practice Guide (2014). The assessment will take into account wind shear and issues regarding low frequency noise, tonality and amplitude modulation. A cumulative noise assessment will be included within the EIA. This assessment will identify other wind turbine and other relevant development (operational, consented or subject to an application) in the area that may impact on sensitive receptors together with the Proposed Development. A cut-off date for the assessment will be identified in the EIA Report and a list of wind turbine developments identified for the cumulative assessment will be created.
- 6.4.14 The majority of noise related guidance and standards (including the ETSU Guidance) are not directly related to the concepts of 'significant' and 'not significant' effects that underpin EIA. However, for the purposes of the assessment, the determination of effect significance for the operational phase of the Proposed Development is based upon compliance with the applicable noise limit i.e. a breach of noise limits indicates a significant effect, whereas compliance with noise limits indicates an effect which is not significant.
- 6.4.15 As noise levels exceeding the ETSU Guidance noise limits are deemed to be significant, they would require further consideration were this the case; with a view to identifying appropriate mitigation to ensure compliance with the specified limits. These may include adoption of quieter turbines; reducing the power rating, and thus the noise emission of particular turbines in particular wind environments; or design of a noise management plan which varies the operation of the wind turbines dependent on the existing wind direction.

7. Shadow Flicker

7.1 Overview

- 7.1.1 Shadow Flicker is a phenomenon that can occur in sunny weather when turbines are operating and the rotating blades cause a flickering effect inside a building where sunlight passes through an opening such as a window or door.
- 7.1.2 For shadow flicker to occur, the receptor must be directly in line with the wind turbines when the sun is low in the sky and within 10 rotor diameters of a turbine where they are located within 130 degrees either side of north of any turbine. In these circumstances, the moving turbine blade briefly blocks/reduces the intensity of light entering an opening to a room on each rotation, causing a flickering to be perceived. In the open, shadow flicker is generally not perceived as light outdoors is reflected from all directions.
- 7.1.3 It is stated within the Scottish Government's Onshore Wind Turbines planning advice note (May 2014) 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'.
- 7.1.4 The nearest residential properties are located approximately 2km to the east and west of the wind farm area, well beyond the area potentially affected by this phenomenon. For example this could be in the region of 1.75km for a possible turbine (10 x 170m rotor diameter plus 50m micro-siting allowance). As such shadow flicker is not predicted and an assessment has been scoped out of the EIA. If, after design development, any properties were to be located within a 130 degree segment either side of due north, relative to the turbines and within ten rotor diameters of a turbine (as per the guidance) they will be assessed for shadow flicker.
- 7.1.5 Where properties meet both of the criteria for there to be a potential shadow flicker effect, the seasonal duration of this effect will be calculated from the geometry of the turbine and the latitude of the Development Site, to assess potential impacts upon the amenity of local residents. Mitigation measures will be proposed in the EIA Report should they be necessary.

8. Landscape and Visual

8.1 Introduction

- 8.1.1 This chapter sets out the proposed scope of the Landscape and Visual Impact Assessment (LVIA) which will assess the likely significant effects, including cumulative effects of the Proposed Development on landscape and visual amenity receptors. The following related technical assessments would also be included:
- Night-time Lighting Visual Assessment; and
 - Wild Land Assessment.
- 8.1.2 Consultees are requested to confirm the scope of this assessment and in particular comment on other known wind farm developments which should be included in the assessment (**Table 8.1**), the proposed viewpoint locations (and excluded viewpoint locations) (**Tables 8.2 – 8.3**), the assessment methodology (**Section 8.6**) including scope of the Wild Land Assessment and Night-Time Lighting Visual Assessment and matters that are proposed to be scoped out of this assessment (**paragraph 8.5.14**).
- 8.1.3 The chapter is supported by **Figures 8.1-8.8** in **Appendix A** and should be read in conjunction with **Chapter 2: Project Description**.

8.2 Relevant planning policy and technical guidance

- 8.2.1 The LVIA process would take account of national and local planning policy in relation to wind farm development, including the national planning requirements for those areas identified for wind farm development to be suitable for use in perpetuity. In addition to the Argyll and Bute Council (ABC), *Local Development Plan*, 2015 (including the Argyll and Bute Proposed Local Development Plan, 2019) and *Supplementary Guidance*, March and December 2016, the LVIA would also take into account of the *Argyll and Bute Landscape Wind Capacity Study* (ABLWCS), 2017².
- 8.2.2 Further information on Planning Policy is provided in **Chapter 4: Planning Policy Context**.

Argyll and Bute Landscape Wind Capacity Study

- 8.2.3 The Argyll and Bute LDP states that as the ABLWCS is a "... *technical study it does not form part of the spatial framework for wind farms, it does however provide information on the sensitivity of the various landscape character areas in Argyll and Bute to accommodate ... different typologies of wind turbines* " (p.89).
- 8.2.4 The ABLWCS provides design guidance in terms of landscape constraints and opportunities relevant to the *Craggy Upland* landscape character type (LCT) and advice on landscape sensitivity to very large turbines >130m to blade tip.
- 8.2.5 Importantly, the ABLWCS notes, in the executive summary, that it is a non-statutory, strategic assessment and the judgements on sensitivity represent a 'rounding up' or averaging across broad character types and areas, where considerable variation can otherwise occur. In contrast, the LVIA would be specific to the Proposed Development and its location and takes precedence over the ABLWCS in respect to the Proposed Development.

² Carol Anderson Landscape Associates, 2017, Argyll and Bute Landscape Wind Capacity Study

Sensitivity to Very Large Turbines (> 130m to Blade Tip) in the Craggy Upland LCT

8.2.6 The ABLWCS describes the key characteristics of the *Craggy Upland LCT* as comprising:

"...This landscape generally has a large scale and simple land cover of extensive moorland and coniferous forestry which reduces sensitivity to wind farm development..."

8.2.7 A number of the key characteristics are noted by the ABLWCS as presenting opportunities for large wind farm development, and these include:

- *"The generally simple landform and land cover and the large scale of interior plateaux. Forested areas are generally less sensitive as the underlying landform tends to be less craggy and complex;*
- *The very sparsely settled nature of these uplands and their relative inaccessibility which limits close views of the interior plateau; and*
- *No designated landscapes apply to most of this character type...."*

8.2.8 Constraints relevant to the *Craggy Upland LCT* are noted as follows:

- *"The backdrop of steep slopes and skyline ridges which provide the immediate setting to the settled fringes of Loch Awe and to the less settled Loch Avich area but also to the small scale settled landscapes of the adjacent Craggy Uplands with Settled Glens (7a) to the west;*
- *Area of more complex craggy landform including steep-sided ridges and knolly tops and the higher pronounced summits of Beinn Chapull, Beinn Dearg and Beinn Ghlas seen from adjacent settled glens.;*
- *The intricate pattern of lochans and small knolly hills in the south-eastern part of the interior plateau of this character type and the more extensive areas of unmodified ground where a degree of naturalness and seclusion can be experienced;*
- *Occasional pronounced small open-topped hills close to Loch Awe and long wooded lower hill slopes which form spurs and promontories extending into Loch Awe and add to its scenic interest;*
- *The wider setting to the planned settlement of Inveraray and views from Loch Fyne.*
- *Prominent hills which form landmark features including Beinn Bhreac and Beinn Dearg which lie in the area between Loch Awe and Loch Fyne and are seen from inner Loch Fyne;*
- *Potential effects of large turbines sites on the north-eastern edge of this landscape on the scenic basin of north Loch Awe; and*
- *Potential cumulative effects with the operational wind farms of A'Chruach, An Suidhe, Carriag Gheal and Beinn Ghlas particularly affecting views from Loch Awe and Loch Fyne. Cumulative effects could also occur in more extensive views from the popular Munro of Ben Cruachan, the Wild Land Areas of Loch Etive Mountains and Ben Lui to the north and east and the sea and islands to the west."*

8.2.9 Of these it may be noted that there is **no view** of the Proposed Development from the core settlement of Inveraray and the scenic basin of north Loch Awe. The Munros of Ben Cruachan, Ben Lui and the Loch Etive Mountains are all located well beyond 26km from the Proposed Development. The potential for more localised effects on recreational receptors and the setting of Loch Fyne and Loch Awe may be somewhat limited by existing forestry on the Development Site and its surroundings, and the diverse topography. The most relevant factor is the potential for cumulative effects resulting from other wind farm development (in particular, A'Chruach and An Suidhe³) in views from the shores of Loch Fyne and Loch Awe, particularly where turbine size,

³ This wind farm would be nearing the end of its consent when the Proposed Development would be built.

pattern and siting is noticeably different. The ABLWCS also notes an inherently *"High landscape sensitivity to very land turbines (> 130m)."*

- 8.2.10 In relation the Proposed Development, under Guidance for development, the ABLWCS further notes:

"Development should be sited to avoid the steep, predominantly wooded slopes which provide an immediate backdrop and setting to Loch Awe and its settled fringes and to Loch Avich. They should also be sited away from the occasional small hills, wooded spurs and promontories along the shores of Loch Awe."

8.3 Baseline Conditions

- 8.3.1 The Site is undesignated and lies within an area dominated by coniferous forestry and moorland. In addition, it is remote from major settlements. The closest major settlement, Inveraray, is located ~8km whilst the closest villages, Eredine and Furnace, are located ~4-5km from the Proposed Development. The existing An Suidhe Wind Farm is located less than 1km to the northeast whilst the existing A'Chruach Wind Farm is located ~4km to the southwest. However, the existing An Suidhe Wind Farm is approaching the end of its operational period under its present planning consent and is likely to be decommissioned. A Core Path traverses the Development Site connecting Eredine in the north to Furnace in the south. There are a number of other man-made influences in the wider landscape including farms and other properties, roads, coniferous forestry, transmission pylon lines, Cruachan Hydro Power Station and wind farms.

Current baseline

- 8.3.2 The 'host' landscape for the Proposed Development is an extensive area of *Craggy Upland* LCT which is defined in the ABLWCS.
- 8.3.3 The surrounding area is dominated by upland moor plateaux with rounded ridges, craggy outcrops and an irregular slope profile. Upland lochs, winding narrow glens and wider river valleys flow through the landscape.
- 8.3.4 The diverse nature of the topography creates a rugged skyline with a variety of different types of views: there are panoramic, long distance views from elevated uplands, enclosed, channelled views along the U-shaped valleys, but in contrast, wide open views across the low-lying gentle topography of the bays and long, unimpeded views along coastal roads which are often elevated above the coastal plain. Views from the coastal regions further inland are often restricted by the surrounding rugged upland peaks and moorland slopes.
- 8.3.5 Native landcover features such as broadleaf woodland, moorland and bog persist in areas which have been difficult to cultivate, or which are located close to settlements, loch-side edges and erosion channels and occasional water catchments where riparian vegetation has colonised. Coniferous forestry is also relatively dominant in the area.
- 8.3.6 Settlements are scattered on the edges of valleys and lochs, and as well as the principal roads are concentrated in the valleys and along the coastline, winding tightly around loch edges or through glens.
- 8.3.7 Wind farm development is present within this area and cumulative assessment will be an important part of the LVIA. Wind farm development most relevant to the cumulative assessment is listed in **Table 8.1** and illustrated on **Figure 8.4** in **Appendix A**.

Future baseline

- 8.3.8 Further change to the baseline landscape is likely as a result of new applications and / or eventual decommissioning or repowering of existing wind farms and their associated grid connections, occurring over the next 10-20 years.
- 8.3.9 Forestry felling and re-stocking is also likely to change the nature of available views across this landscape from various receptors within the LVIA Study Area.

Table 8.1 Wind Farms relevant to the cumulative assessment

Reference	Name of wind farm	Number of wind turbines	Approximate distance from Proposed Development (m)	Height to blade tip (m)	Status
E01	An Suidhe	23	475	77.6 / 79.6	Existing
E02	A'Chruach	21	2,609	126.5	Existing
E03*	Blarghour Farm	2	5,913	27	Existing
E04	Carraig Gheal	20	12,317	110 / 125	Existing
E05	Cruach Mhor	35	14,287	71	Existing
E06	Clachan Flats (Ardkinglass)	9	15,990	93	Existing
E07	Beinn Ghlas	14	17,900	54	Existing
E08	Sròn doire	3	28,527	100 / 120	Existing
E09	Allt Dearg	12	27,342	81	Existing
C01	A'Chruach Phase 2	2	3,535	135	Consented
C02	Blarghour	17	5,761	136.5	Consented
A01	Creag Dhubh	9	10,833	114.9 / 124.3 / 130.6 / 144.4	Application
S01	Car Duibh	26	3,202	200	Scoping

* Micro generation turbine (25-50m) within 10km

8.4 Data Sources

- 8.4.1 A range of desk-based and site-based data will be sourced to undertake the LVIA and cumulative assessment, covering landscape and visual receptors and other cumulative wind farm development. The desk-based data will be drawn from Ordnance Survey maps and a range of document sources in addition to the relevant planning policy documents outlined in **Chapter 4: Planning Policy Context**.

Preliminary LVIA Study Area

- 8.4.2 A preliminary LVIA Study Area for the Proposed Development is illustrated in **Figure 8.1** in **Appendix A** in accordance with Nature Scot (NS) guidance⁴ for turbines of the proposed turbine height (turbines ≥ 150 m to blade tip).

Landscape Receptor Data Sources

- 8.4.3 The landscape character of the Development Site and the proposed LVIA Study Area is described in the ABLWCS. This data source is used as an exception to the National Landscape Character Assessment⁵ which covers the whole of Scotland and supersedes previous 1990's landscape character descriptions and mapping of the area. This is because the NatureScot (NS) website⁶ advises that this data "should be used for new development proposals, plans and strategies, and so on. Where current proposals or projects have analysis based on the 1990s LCT dataset that should still be used. It should be noted which dataset has been used. Where there are topic-specific landscape capacity or sensitivity studies, they would take precedence for informing that development type, e.g. wind farms." It may be noted that the ABLWCS is a 'topic-specific landscape capacity or sensitivity, study that should be used to inform wind farm development within Argyll and Bute.
- 8.4.4 There are nationally and locally designated landscapes within the LVIA Study Area. These and the special landscape qualities for which these areas are protected would be sourced as follows:
- Loch Lomond and The Trossachs National Park: *Local Development Plan 2017 – 2021*, LIVE Park and *The Special Landscape Qualities of the Loch Lomond and The Trossachs National Park*: SNH Commissioned Report No. 376, 2010;
 - National Scenic Areas: *The Special Qualities of the National Scenic Areas*: SNH Commissioned Report No. 374, 2010, and NS's working draft 'Guidance for Assessing the Effects on Special Landscape Qualities', November 2018; and
 - Argyll and Bute Area of Panoramic Quality (or Local Landscape Area); *Local Development Plan 2015*, and *Proposed Local Development Plan 2*, 2019.
- 8.4.5 Other areas of landscape interest include Wild Land Areas and Gardens and Designed Landscapes. The data for these receptors will be sourced from the following:
- Wild Land Areas, NS, 2017⁷; and
 - Historic Environment Scotland, Inventory of Gardens and Designed Landscapes⁸.

Visual Receptor Data Sources

- 8.4.6 Visual receptors, included in the LVIA are settlements and residential properties, transport routes and recreation routes such as the Core Path Network and outdoor community recreational facilities or places and tourist / visitor attractions and destinations. The locations of these will be sourced from Ordnance Survey maps, site survey information and the following sources:
- Scotland's Great Trails⁹;

⁴ Scottish Natural Heritage, February 2017. *Visual Representation of Wind Farms: Good Practice Guidance, Version 2.2*, page 12.

⁵ Scottish National Heritage, 2019. *National Landscape Character Assessment*.

⁶ <https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/landscape-character-assessment-scotland>

⁷ <https://www.nature.scot/professional-advice/landscape/landscape-policy-and-guidance/landscape-policy-wild-land>

⁸ <http://www.historic-scotland.gov.uk/>

⁹ <http://www.snh.gov.uk/enjoying-the-outdoors/where-to-go/routes-to-explore/scotlands-great-trails/>

- Sustrans Cycle Network¹⁰;
- Core Path Network and other promoted recreational routes;
- Historic Environment Scotland, National Trust and other sites open to the public¹¹;
- Walk Highlands Website¹²; and
- Other printed or web-based sources of tourist / recreational literature.

8.4.7 Cumulative information on other existing and consented wind farms and planning applications for other wind farm developments would be sourced from local authority and developer sources.

Other Technical Guidance

8.4.8 In addition, other technical and supporting guidance includes, but is not limited to the following:

- Landscape Institute and IEMA *Guidelines for Landscape and Visual Impact Assessment*, 3rd Edition (GLVIA 3);
- NS, *Visual Representation of Windfarms*, Version 2.2, February 2017;
- NS, *Siting and Designing Windfarms in the Landscape*, Version 3a, August 2017;
- NS, *Guidance: Assessing the Cumulative Impact of Onshore Wind Energy Developments*, 2021;
- NS, *Guidance: General pre-application and scoping advice for onshore wind farms*, (September 2020);
- University of Newcastle for NS: *Visual Assessment of Windfarms: Best Practice*, Commissioned Report F01AA303A, 2002;
- Landscape Institute, *Residential Visual Amenity Assessment: Technical Information Note*, 15 March 2019;
- Landscape Institute, *Visual Representation of Development Proposals Technical Guidance Note* 06/19, September 2019;
- NS, *Guidance: Spatial Planning for Onshore Wind Turbines – natural heritage considerations, Version 3a*, June 2015;
- Scottish Renewables, NS, Scottish Environment Protection Agency, and the Forestry Commission Scotland, *Good Practice during Windfarm Construction: Version 3*, 2015;
- CAA, *Article 222 of the UK Air Navigation Order (ANO) 2016*;
- CAA Policy Statement, *Lighting of Onshore Wind Turbine Generators in the United Kingdom with a maximum blade tip height at or in excess of 150m Above Ground Level*; and
- Argyll and Bute Council, *Woodland and Forestry Strategy*, April 2011.

Field Surveys / Modelling

8.4.9 Field surveys will be undertaken to observe, assess and record landscape and visual receptors and provide a photographic record of each assessment viewpoint in accordance with NS, *Visual Representation of Wind Farms: Good Practice Guidance, Version 2.2*. The field studies will include

¹⁰ <http://www.sustrans.org.uk/ncn/map/national-cycle-network/using-network/route-numbering-system>

¹¹ <http://www.historic-scotland.gov.uk/>

¹² <http://www.walkhighlands.co.uk>

documented visits to all relevant landscape and visual receptors to assess the likely effects of the Proposed Development in the field, checking data, 'ground truthing' and examining landscape elements, characteristics / character and views / visual amenity.

- 8.4.10 Computer modelling of the landscape / landform, other cumulative development and the Proposed Development will be undertaken using a variety of software to support the LVIA and cumulative assessment.

8.5 Scope of Assessment

Zone of Theoretical Visibility and Viewpoint Analysis

- 8.5.1 The Zone of Theoretical Visibility (ZTV) analysis is used to assist the design and further define the scope of the assessment and is used to indicate the areas from where it may be theoretically possible to view all or some of the proposed turbines. The ZTVs have been calculated using ReSoft WindFarm computer software to produce an area of potential visibility of any part of the proposed turbines, calculated to turbine blade-tip and hub-height, or other selected infrastructure. The ZTV does not however take account of built development and vegetation, which can significantly reduce the area and extent of actual visibility in the field and as such provides the limits of the visual assessment Study Area. As a result there may be an over-estimate of the theoretical visibility with roads, tracks and footpaths in the wider setting which, although shown as falling within the ZTV, have restricted viewing opportunities since they are heavily screened or filtered by banks, walls and vegetation. The ZTVs therefore provide a starting point in the assessment process and accordingly tend towards giving an over-estimated or maximum theoretical visibility of the proposed turbines.
- 8.5.2 A preliminary ZTV map has been produced and is calculated to show the area of theoretical visibility of the proposed turbines based on an indicative 26 turbine layout of up to 230m height as follows:
- **Figure 8.2 in Appendix A** illustrates the ZTV calculated to blade tip height at 1:360,000 scale across the 45km LVIA Study Area and provides an overview of the theoretical extent of visibility. This figure also illustrates the viewpoint locations and cumulative wind farms; and
 - **Figure 8.5 in Appendix A (A0 fold-out)** illustrates the same ZTV calculated to blade tip height at 1:120,000 across the 45km LVIA Study Area and is shown on an Ordnance Survey Landranger base map with viewpoint locations and cumulative wind farms.
- 8.5.3 **Figure 8.5 in Appendix A** is presented on a more detailed base map and has been provided to assist the scoping process and in particular the selection of viewpoint locations and landscape and visual receptors. For the avoidance of doubt, areas out with the coloured areas of the ZTV would have **no view** of the Proposed Development and landscape and visual receptors within these areas are consequently scoped out of the LVIA.

Confirmation of LVIA Study Area

- 8.5.4 The LVIA Study Area for the Proposed Development (**Figure 8.1 in Appendix A**) is based on a 48,657m radius circle that allows a minimum of 45km distance from an indicative 26 turbine layout in accordance with NS guidance¹³. It represents an over-estimated or maximum theoretical visibility of the Proposed Development. As illustrated in **Figure 8.2 in Appendix A** much of the area between 30-45km includes areas of sea and remote geographical regions to the north, northwest, southwest and east which would either have no visibility or very limited visibility of the Proposed Development at very long distance. Visibility from the remote geographical regions of the Isles of

¹³ Scottish Natural Heritage, February 2017. *Visual Representation of Wind Farms: Good Practice Guidance, Version 2.2*

Jura and Mull would also have very limited visibility of the Proposed Development at over 30km. For these reasons it is proposed to reduce the LVIA Study Area to 30km distance from the Proposed Development and to focus the assessment of likely and potential significant effects on receptors within this area and the extent of the blade tip ZTV. This approach was agreed by NS in September 2020 in a response to the previous scoping report. Although the heights of the proposed turbines are taller, the extent of visibility of the Proposed Development has broadly remained the same as before.

Confirmation of Cumulative LVIA Study Area

- 8.5.5 In accordance with NS guidance¹⁴ on cumulative assessment, information on existing and consented wind farms and other planning applications for other wind farm developments would be sourced from within a 'search area' of 60 km in order to inform the cumulative assessment of effects on landscape and visual receptors within the 45km radius LVIA Study Area. As noted in paragraph 8.5.4 above, it is also proposed to reduce the cumulative search area to 30km in line with the LVIA Study Area. Also as stated above, this approach was agreed by NS in September 2020 in a response to the previous scoping report.
- 8.5.6 The current cumulative situation within 30km is indicated in **Table 8.1** and illustrated in **Figure 8.4** in **Appendix A**, showing the locations of wind farms that are operational, under construction, consented or which are at application stage and where the turbines are greater than 50m to blade tip. Micro-generation turbines (25-50m) within 10km have been included whilst single turbines beyond 10km are excluded. In line with NS guidance, scoping stage wind farms have not been included with the exception of Carn Duibh which is proposed at approximately 3.2km distance northeast of the Proposed Development.

Viewpoint Selection and Visualisations

- 8.5.7 A range of viewpoints have been proposed (as illustrated on **Figures 8.2 and 8.5** in **Appendix A**) and consultees are requested to confirm the viewpoint selection set out in **Table 8.2**. It is to be noted that the viewpoint list was agreed with NS and ABC in September 2020 in responses to the previous scoping report. These viewpoints have been reviewed in light of the taller turbines for the Proposed Development and remain the same.
- 8.5.8 Visualisations would be prepared for each viewpoint to accord with NS guidance¹⁵ and include 90° baseline photographs and wirelines, and 53.5° photomontages and wirelines. The table includes the following information provided for each viewpoint:
- Viewpoint name and number;
 - Grid coordinates;
 - Distance to nearest turbine;
 - View direction;
 - Viewpoint type and receptor;
 - Landscape character type at viewpoint;
 - Landscape designation at viewpoint;
 - Visualisation method; and

¹⁴ Scottish Natural Heritage, March 2012. *Guidance: Assessing the Cumulative Impacts of Onshore Wind Energy Developments*.

¹⁵ Scottish Natural Heritage, February 2017. *Visual Representation of Wind Farms: Good Practice Guidance, Version 2.2*

- Viewpoint for nearby wind farms.

8.5.9

Table 8.3 provides a list of 15 viewpoints which are proposed to be excluded from the LVIA for various reasons as described. Each viewpoint is also supplemented by a wireline (based on the scoping layout) included in **Figure 8.8a-h**. Wirelines for all excluded viewpoints will also be included in an appendix to the LVIA in the EIA Report based on the final design. It is to be noted that these excluded viewpoints were agreed to be scoped out by NS in September 2020 in a response to the previous scoping report.

8.5.10

There are also a number of specific receptor locations within 15km which would have **No View** of the Proposed Development:

- Settlements of Eredine, Minard, Furnace and Inveraray (screened by landform and vegetation), Kilchrenan, Kilmartin, Lochgilphead, and the majority of Ford;
- The majority of the Cowal Way (Scotland's Great Trails);
- A819;
- The majority of the A83, A815, B840, Hell Glen's Road (including all of the A815 and Hell Glen's Road within the Loch Lomond and Trossachs National Park);
- Approximately 65% of the waters of Loch Awe would have no visibility of the proposed development, including the more sensitive northern end;
- Inveraray Castle; and
- The majority of Knapdale National Scenic Area (NSA) (see paragraphs 8.6.17-22 for further comments on the NSA), Knapdale / Melfort, Bute and South Cowal APQs.

Table 8.2 Proposed LVIA Viewpoints

VP No.	Viewpoint	Grid coordinates (Easting / Northing)	Approximate distance to Proposed Development (nearest turbine) (m)	View direction	Viewpoint Type / Receptor	Landscape Character Type at viewpoint (<i>Argyll and Bute Landscape Wind Energy Capacity Study, 2017</i>)	Landscape Designation at viewpoint	Visualisation Method	Viewpoint for nearby wind farms	Consultee request	Other Comments
1	B840 Durran	195775, 707851	2,889	South-east	Illustrative - Road users	Rocky Mosaic	-	Photomontage	-	Scoping Report	Up to 10 turbines visible (7 hubs and 5 blades / blade tips (further vegetation screening will screen some turbines))
2	Loch Awe Waters	196207, 709688 (TBC on site visit)	3,804	South / South-east	Illustrative – recreational boat users	Loch	-	Wireline only	-	NS	In May 2022, Loch Awe Boats announced that it would not be hiring boats to the general public and access to Loch Awe is by permit only and therefore private
3	Kilmaha*	194100, 708535	4,695	South-east	Specific - Visitors, road users, cyclists	Craggy Upland	-	Photomontage	Blarghour, Upper Sonachan, An Suidhe	Scoping Report	Up to 26 turbines visible (23 hubs and 3 blades) – Design viewpoint
4	Dalavich*	197251, 713245	6,788	South	Illustrative – Residents, visitors	Craggy Upland	-	Photomontage	Blarghour	Scoping Report	Located by the pier, below the Dalavich Social Club and camping pods. Up to 11 turbines visible (9 hubs and 2 blades) – Design viewpoint

VP No.	Viewpoint	Grid coordinates (Easting / Northing)	Approximate distance to Proposed Development (nearest turbine) (m)	View direction	Viewpoint Type / Receptor	Landscape Character Type at viewpoint (<i>Argyll and Bute Landscape Wind Energy Capacity Study, 2017</i>)	Landscape Designation at viewpoint	Visualisation Method	Viewpoint for nearby wind farms	Consultee request	Other Comments
5	Ardnagowan	209679, 704807	7,755	West	Representative – Residents, local landscape designation	Rocky Mosaic	East Loch Fyne Area of Panoramic Quality (APQ)	Photomontage	-	Scoping Report	Up to 11 turbines visible (3 hubs and 8 blade tips)
6	B8000 Lachlan Bay	200557, 694919	7,857	North	Illustrative - Road users, visitors to Inver Restaurant and Lachlan Castle, local landscape designation	Rocky Mosaic	East Loch Fyne APQ	Photomontage	A'Chruach	Scoping Report	Up to 6 turbines visible (2 hubs and 4 blade tips)
7	Strachur*	208454, 701124	7,908	North-west	Representative - Residents, road users, local landscape designation	Rocky Mosaic	East Loch Fyne APQ	Photomontage	-	Scoping Report	Up to 19 turbines visible (8 hubs and 11 blade tips) – Design viewpoint
8	Leanach*	204834, 697567	8,130	North-west	Representative - Residents, road users	Loch Fyne Upland Forest Moor Mosaic / Rocky Mosaic	-	Photomontage	A'Chruach	Scoping Report	Up to 24 turbines visible (19 hubs and 5 blades / blade tips) - Design viewpoint
9	Sustrans Cycle Route 78 between Dalavich and Inverinan	197405, 714641	8,149	South / South-west	Illustrative - Cyclists, road users	Craggy Upland	-	Photomontage	An Suidhe	NS	Up to 19 turbines visible (11 hubs and 8 blades / blade tips)

VP No.	Viewpoint	Grid coordinates (Easting / Northing)	Approximate distance to Proposed Development (nearest turbine) (m)	View direction	Viewpoint Type / Receptor	Landscape Character Type at viewpoint (<i>Argyll and Bute Landscape Wind Energy Capacity Study, 2017</i>)	Landscape Designation at viewpoint	Visualisation Method	Viewpoint for nearby wind farms	Consultee request	Other Comments
10	Loch Fyne Waters	197369, 692983 (TBC on site visit)	8,808	North-east	Illustrative – recreational boat users	Loch	-	Baseline Photo and Wireline	Upper Sonachan	NS	Exact location from boat to be confirmed on site
11	Ford	187111, 704231	9,212	East	Illustrative - Residents, road users	Rocky Mosaic	-	Photomontage	Blarghour	Scoping Report	Up to 8 turbines visible (0 hubs and 8 blade tips)
12	Dun na Cuaiche (Fort)	210075, 710346	9,366	South-west	Specific – Visitors to GDL, walkers to fort	Loch Fyne Upland Forest Moor Mosaic	Inveraray Castle Garden and Designed Landscape (GDL)	Photomontage	Blarghour, Creag Dhubh	Scoping Report	Up to 19 turbines visible (12 hubs and 9 blades / blade tips)
13	St Catherine's	212138, 707545	10,343	South-west	Illustrative – Residents, road users, local landscape designation	Steep Ridgelines and Mountains	East Loch Fyne APQ	Photomontage	Blarghour	Scoping Report	Up to 15 turbines visible (4 hubs and 11 blades)
14	Sustrans Cycle Route 78 (Fernoch Hill)	201349, 719792	13,579	South / South-west	Illustrative - Cyclists, road users	Rocky Mosaic	-	Photomontage	An Suidhe, Carraig Gheal	Scoping Report	Up to 11 turbines visible (7 hubs and 4 blades / blade tips)
15	Hell's Glen Road (B839) near A815	215956, 707950	14,174	South-west	Illustrative - Road users, visitors, local landscape designation	Steep Ridgeland and Mountains / High Tops	North Argyll APQ	Photomontage	-	NS	Up to 16 turbines visible (12 hubs and 4 blades / blade tips) Note – there is no visibility from this road

VP No.	Viewpoint	Grid coordinates (Easting / Northing)	Approximate distance to Proposed Development (nearest turbine) (m)	View direction	Viewpoint Type / Receptor	Landscape Character Type at viewpoint (Argyll and Bute Landscape Wind Energy Capacity Study, 2017)	Landscape Designation at viewpoint	Visualisation Method	Viewpoint for nearby wind farms	Consultee request	Other Comments
											from within the National Park
16	Beinn Lochain (Cowal Peninsula & Cowal Way)	216046, 700683	14,927	North-west	Specific - Hill walkers, Cowal Way walkers, National Park	Steep Ridgeland and Mountains	Loch Lomond and Trossachs National Park	Photomontage	-	NS	Up to 25 turbines visible within this 360 degree panoramic view along with other existing wind farms
17	Otter Ferry	192992, 684464	17,695	North-east	Representative - Residents, visitors, landscape designation	Rocky Mosaic	East Loch Fyne APQ, Ballimore GDL	Photomontage	A'Chruach	Scoping Report	Up to 25 turbines visible (17 hubs and 8 blades / blade tips)
18	Cruach Mor Dunardry Summit	181825, 690749	18,512	North-east	Specific – walkers, Knapdale NSA	Upland Parallel Ridges (SNH)	Knapdale NSA	Photomontage	A'Chruach	NS	Up to 25 turbines (18 hubs and 7 blades / blade tips visible) – same angle of view as An Suidhe, A'Chruach and Carraig Geal wind farms.
19	Beinn Bhuidhe	220243, 718640	22,419	South-west	Specific - Hill walkers, local landscape designation, WLA		North Argyll APQ, Ben Lui WLA	Photomontage	Upper Sonachan	NS	All turbines visible within this 360 degree panoramic view along with other existing wind farms
20	Beinn Ime	225484, 708463	23,682	South-west	Specific - Hill walkers, National Park	Open Upland Hills (National Park LCA)	Loch Lomond and Trossachs	Baseline Photo and Wireline	Upper Sonachan,	Scoping Report	All turbines visible within this 360 degree panoramic view along

VP No.	Viewpoint	Grid coordinates (Easting / Northing)	Approximate distance to Proposed Development (nearest turbine) (m)	View direction	Viewpoint Type / Receptor	Landscape Character Type at viewpoint (Argyll and Bute Landscape Wind Energy Capacity Study, 2017)	Landscape Designation at viewpoint	Visualisation Method	Viewpoint for nearby wind farms	Consultee request	Other Comments
							National Park				with other existing wind farms
21	Ben Cruachan	206960, 730446	25,291	South-west	Specific - Hill walkers, local landscape designation, WLA	High Tops	North Argyll APQ, North Etive Mountains Wild Land Area (WLA)	Baseline Photo and Wireline	Blarghour, Upper Sonachan, An Suidhe, Creag Dhubh	Scoping Report	All turbines visible within this 360 degree panoramic view along with other existing wind farms
22	A83 south of Inverneill	185670, 678808	25,471	North-east	Illustrative - Road users, visitors	Rocky Mosaic	-	Baseline Photo and Wireline		Scoping Report	Up to 26 turbines visible (13 hubs and 13 blades / blade tips)

*Also night-time viewpoint

Table 8.3 Excluded LVIA Viewpoints (accompanying wirelines on **Figure 8.8a-h**)

VP No.	Viewpoint	Grid coordinates (Easting / Northing)	Approximate distance to Proposed Development (nearest turbine) (m)	View direction	Viewpoint Type / Receptor	Landscape Character Type at viewpoint (Argyll and Bute Landscape Wind Energy Capacity Study, 2017)	Landscape Designation at viewpoint	Viewpoint for nearby wind farms	Consultee request	Justification for exclusion
A	Inverinan (Figure 8.8a)	199737, 717496	11,036	South	Illustrative – Residents, cyclists	Rocky Mosaic	-	Blarghour, An Suidhe	Argyll and Bute Council	Whilst the wireline shows some limited visibility, the actual visibility is largely screened by mature, dense vegetation and built form within and

VP No.	Viewpoint	Grid coordinates (Easting / Northing)	Approximate distance to Proposed Development (nearest turbine) (m)	View direction	Viewpoint Type / Receptor	Landscape Character Type at viewpoint (Argyll and Bute Landscape Wind Energy Capacity Study, 2017)	Landscape Designation at viewpoint	Viewpoint for nearby wind farms	Consultee request	Justification for exclusion
										on the edges of the settlement. An alternative viewpoint has therefore been selected to the north – VP 14
B	Loch Avich Road (Figure 8.8a)	193190, 715155	10,038	South-east	Illustrative - Road users	Craggy Upland	-	Blarghour, An Suidhe	Scoping Report	As indicated by the wireline, very limited visibility from this short stretch of minor road within the ZTV. View likely to be further screened by coniferous forestry.
C	Cowal Way near Strachur (Figure 8.8b)	209859, 701052	9,132	North-west	Illustrative – walkers	Rocky Mosaic	-	-	NS	Closest point of Cowal Way to Proposed Development. Visibility of up to 2 hubs and 4 blade tips, however, the view is completely screened by built-form and vegetation. An alternative viewpoint has therefore been selected at Beinn Lochain where the Cowal Way passes very close to the summit. The majority of this route is also outwith the ZTV.
D	Ardkinglas and Strone Gardens and Designed Landscape (Figure 8.8b)	217739, 710292	16,438	South-west	Illustrative – visitors to GDL (woodland garden only)	High Tops	Ardkinglas and Strone GDL	-	NS	Private house and estate – no public access except for Ardinglas Woodland Garden – although the wireline indicates some visibility, the actual visibility would be screened by mature, dense woodland following a site visit
<u>A83 Locations</u>			The most representative location from the A83 with the clearest views is from south of Inverneill (VP 22)						NS	

VP No.	Viewpoint	Grid coordinates (Easting / Northing)	Approximate distance to Proposed Development (nearest turbine) (m)	View direction	Viewpoint Type / Receptor	Landscape Character Type at viewpoint (Argyll and Bute Landscape Wind Energy Capacity Study, 2017)	Landscape Designation at viewpoint	Viewpoint for nearby wind farms	Consultee request	Justification for exclusion
E1	A83 Old Military Road (Figure 8.8c)	211237, 708959	9,840	South-west	Illustrative – road users, local landscape designation	Mountain Glens	North Argyll APQ, Inveraray Castle GDL	-		Although wireline indicates very limited visibility, the actual visibility would be screened by mature, dense woodland all along this stretch of road (including laybys) following a site visit
E2	A83 Furnace (Figure 8.8c)	202286, 700512	4,288	North / North-west	Illustrative – road users, residents	Rocky Mosaic	West Loch Fyne APQ	-		Visibility of three turbines screened by mature roadside vegetation following a site visit
E3	A83 Minard (Figure 8.8d)	197783, 696162	5,707	North	Illustrative – road users, residents	Rocky Mosaic	West Loch Fyne APQ	-		Visibility of 2 blade tips screened by mature vegetation following a site visit
E4	A83 Ardishaig (Figure 8.8d)	185211, 685724	19,733	North-east	Representative – road users, residents	Rocky Mosaic	-	-		Very limited visibility at this distance
<u>Knapdale NSA Locations</u>		The most representative location from the Knapdale NSA is from the summit of Cruach Mor Dunardry (VP 18)							NS	
F1	Knapdale NSA – Crinan (Figure 8.8e)	178844, 694433	19,305	North-east	Illustrative – residents, visitors, Knapdale NSA	Upland Parallel Ridges (SNH)	Knapdale NSA	-		Very limited visibility - 4 blade tips
F2	Knapdale NSA - Bellanoch (including Crinan Canal)	180411, 692379	18,802	North-east	Illustrative – visitors, Knapdale NSA	Upland Parallel Ridges (SNH)	Knapdale NSA	-		Very limited visibility - 4 blade tips

VP No.	Viewpoint	Grid coordinates (Easting / Northing)	Approximate distance to Proposed Development (nearest turbine) (m)	View direction	Viewpoint Type / Receptor	Landscape Character Type at viewpoint (Argyll and Bute Landscape Wind Energy Capacity Study, 2017)	Landscape Designation at viewpoint	Viewpoint for nearby wind farms	Consultee request	Justification for exclusion
(Figure 8.8e)										
F3	Knapdale NSA - Kilmartin Glen (including Slockavullin) (Figure 8.8f)	182779, 697315	14,617	North-east	Illustrative – visitors, Knapdale NSA	Flat Moss and Mudflats (SNH)	Knapdale NSA	-		No visibility
F4	Knapdale NSA - Duntrune Castle (Figure 8.8f)	179483, 695657	18,271	North-east	Illustrative – visitors, Knapdale NSA	Coastal Parallel Ridges (SNH)	Knapdale NSA	-		No visibility
F5	Knapdale NSA – Tayvallich (Figure 8.8g)	173990, 686895	27,148	North-east	Illustrative – residents, Knapdale NSA	Coastal Parallel Ridges (SNH)	Knapdale NSA	-		Very limited visibility - 2 blade tips
F6	Knapdale NSA – Cairnbann (Figure 8.8g)	184184, 690722	16,694	North-east	Illustrative – residents, Knapdale NSA	Upland Parallel Ridges (SNH)	Knapdale NSA	-		No visibility
F7	Knapdale NSA - Hill of Dunadd (Fort) (Figure 8.8h)	183743, 693613	15,310	North-east	Specific – visitors, Knapdale NSA	Flat Moss and Mudflats (SNH)	Knapdale NSA	-		No visibility

Potential receptors

- 8.5.11 Landscape and visual receptors within the LVIA Study Area, most likely to be significantly affected tend to be those which are of higher sensitivity, located closest to the Proposed Development, incurring a direct and / or higher magnitude or level of effect. Viewpoint analysis and site survey, which includes an assessment of sensitivity and magnitude, will be used as part of the assessment to identify those receptors which are most likely to be significantly affected.

Likely significant effects

- 8.5.12 The likely significant landscape, visual and cumulative effects that will be taken forward for assessment in the EIA Report are summarised in **Table 8.4**.
- 8.5.13 It is important to note that whilst some effects can be identified as likely to be significant at this pre-assessment stage, there is the potential for other receptors to be significantly affected, subject to further details of the LVIA and cumulative assessment. Receptors which are unlikely to be significantly affected and may, subject to further assessment, be excluded from detailed assessment in the LVIA.

Table 8.4 Likely significant landscape, visual and cumulative effects

Stage of Development and Activity	Likely significant effect	Receptor
Landscape and Cumulative Landscape Effects		
Construction: Site preparation and construction of associated infrastructure (tracks, borrow pits, control buildings / sub-stations, contractors' facilities, site access and electrical cabling).	Direct localised effects on the host landscape character, characteristics and landscape elements may be significant.	Landscape character: <i>Craggy Upland</i>
Construction and Operation: Turbine erection and operation.	Direct effects on the host landscape character, characteristics and potentially the landscape elements are likely to be significant within ~2-3km. Indirect effects related to the visibility of the turbines and their effect on landscape character and perceptual characteristics have the potential to be significant. Based on the preliminary ZTV, none of the nationally designated landscapes are likely to experience significant effects.	Landscape character: <i>Craggy Upland</i> Other Landscape character units: <i>Loch Fyne Upland Forest Moor Mosaic</i> East Loch Fyne Area of Panoramic Quality (APQ)
Decommissioning: Removal of turbines and associated infrastructure such as control buildings / sub-stations.	Effects unlikely to be significant and will largely reverse the effects of turbine construction and operation.	
Visual and Cumulative Visual Effects		
Construction: Site preparation and construction of associated infrastructure (tracks, borrow pits, control	Effects on views and visual amenity resulting from visibility of the proposed wind turbines within ~1km distance, subject to detailed viewpoint analysis.	Occasional walkers

Stage of Development and Activity	Likely significant effect	Receptor
buildings / sub-stations, contractors' facilities, site access and electrical cabling).		
Construction and Operation: Turbine erection and operation.	Effects on views and visual amenity resulting from visibility of the proposed wind turbines within ~5-10km distance, subject to detailed viewpoint analysis. Views of the proposed aviation warning lights and adverse effects on night-time views within ~5-10km distance, subject to detailed viewpoint analysis and the proposed lighting strategy.	A small number of villages and residential properties Roads including parts of the A815, A886 and minor C road along northern / western shore of Loch Awe Local recreational routes Part of the Sustrans Cycle Route 78 Local visitor attractions
Decommissioning: Removal of turbines and associated infrastructure such as control buildings / sub-stations.	A reduction in the operational effects on views and visual amenity resulting from <u>no</u> visibility of the proposed wind turbines.	A small number of villages and residential properties Roads including parts of the A815, A886 and minor C road along northern / western shore of Loch Awe Local recreational routes Part of the Sustrans Cycle Route 78 Local visitor attractions

Potential effects proposed to be scoped out of further assessment

8.5.14

As a result of the characteristics of the Development Site, baseline receptors and the Proposed Development, it is considered that some receptors would not be significantly affected in the context of the EIA Regulations. These receptors / effects can therefore be scoped out from further assessment in the EIA Report as follows:

- LVIA Wider and Detailed Study Area:
 - ▶ Limit the wider LVIA Study Area for the landscape, visual and cumulative assessment to 30km as a result of the blade tip ZTV. This approach was agreed by NS in September 2020 in a response to the previous scoping report. Although the heights of the proposed turbines are taller, the extent of visibility of the Proposed Development has broadly remained the same as before.
 - ▶ The detailed LVIA study area would be defined by the potential threshold for significant effects based on the viewpoint analysis and would include local / regional level receptors such as local LCTs, local landscape designations, main settlements, transport routes, 'B' and 'C' class roads, core paths / local recreational routes and local attractions. The viewpoint analysis and field survey will be used to confirm if a receptor can be scoped out and viewpoint analysis used to identify a conservative distance or 'threshold' for significant landscape and visual effects.
- Cumulative Assessment:
 - ▶ Limit the cumulative baseline of all operational and consented wind energy development and other applications for wind energy development to within 30km of the Development Site to match the LVIA Study Area; and
 - ▶ Exclude other scoping stage and pre-application schemes in line with NS guidance, except for those within 5km of the Proposed Development.
- Receptors out with the ZTV

- ▶ All receptors within the Study Area that are out with the blade tip ZTV would have **no view** of the Proposed Development and should be scoped out.
- National Scenic Areas
 - ▶ Effects on the Special Landscape Qualities of all NSAs within the Study Area are proposed to be excluded from the assessment due to the very limited visibility and long distance of the Proposed Development – see paragraphs 8.6.17-22 for further details regarding the exclusion of the Knapdale NSA from the assessment.
- Night-time Landscape Assessment
 - ▶ A proportionate night-time visual assessment would be undertaken in accordance with NS guidance (2020) which would be focused on assessing night-time effects on views and visual amenity. It is proposed that night-time effects on landscape receptors is scoped out.
- Residential Visual Amenity Assessment
 - ▶ There are no residential properties within 2km of the Proposed Development. A Residential Visual Amenity Assessment (RVAA) is therefore proposed to be scoped out.

8.6 Assessment Methodology

- 8.6.1 A summary of the proposed landscape, visual, Night-time Lighting Assessment, Residential Visual Amenity Assessment (RVAA) and Wild Land Assessment methodology is set out below.

Integrated Design and Assessment

- 8.6.2 Design is an integrated part of the LVIA process as part of iterative design and assessment. In this case the LVIA and any associated design and mitigation would work closely with forestry specialists to ensure that the LVIA takes full account of the revised Wind Farm Forest Design Plan and realises opportunities where possible for landscape mitigation and enhancement.
- 8.6.3 The methodology for the LVIA would be undertaken in accordance with the Landscape Institute and IEMA *Guidelines for Landscape and Visual Impact Assessment*, 3rd Edition (GLVIA 3), and other best practice guidance.

Assessment of Landscape Effects

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

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

- 8.6.5 The potential landscape effects occurring during the construction, operational and decommissioning periods may therefore include, but are not restricted to, the following:
- Changes to landscape elements: the addition of new elements (wind turbines) or the removal of existing elements such as trees, vegetation and buildings and other characteristic elements of the landscape character type;

- Changes to landscape qualities: degradation or erosion of landscape elements and patterns and perceptual characteristics, particularly those that form key characteristic elements of landscape character types/areas or contribute to the landscape value;
- Changes to landscape character: landscape character may be affected through the incremental effect on characteristic elements, landscape patterns and qualities (including perceptual characteristics) and the addition of new features, the magnitude of which is sufficient to alter the overall landscape character within a particular area;
- Changes to designated landscapes: Including nationally and locally designated landscapes and Wild Land Areas (WLA) that would affect the special landscape qualities underpinning these areas and their integrity; and
- Cumulative landscape effects: where more than one wind farm may lead to a potential landscape effect.

8.6.6 Development may have a direct effect on the landscape as well as an indirect effect which would be perceived from the wider landscape, outside the immediate site area and its associated landscape character/ designation. Landscape effects also have to be recognised in terms of natural and man-made processes which can change or alter the landscape over time.

Assessment of Visual Effects

8.6.7 Visual Effects are concerned wholly with the effect of the development on views, and the general visual amenity, and are defined by the Landscape Institute in GLVIA 3, paragraphs 6.1 as follows:

"An assessment of visual effects deals with the effects of change and development on views available to people and their visual amenity. The concern ... is with assessing how the surroundings of individuals or groups of people may be specifically affected by changes in the context and character of views."

8.6.8 Visual effects are identified for different receptors (people) who would experience the view(s) at their places of residence, during recreational activities, at work, or when travelling through the area. The visual effects may include the following:

- Visual effect: a change to an existing static view, sequential views, or wider visual amenity as a result of development or the loss of particular landscape elements or features already present in the view(s); and
- Cumulative visual effects: the cumulative or incremental visibility of similar types of development may combine to have a cumulative visual effect.

8.6.9 The level of visual effect (and whether this is significant) is determined through consideration of the sensitivity of each visual receptor (or range of sensitivities for receptor groups) and the magnitude of change that would be brought about by the construction, operation and decommissioning of the Proposed Development.

Cumulative Landscape and Visual Impact Assessment

8.6.10 The assessment of cumulative effects is essentially the same as for the assessment of the 'solus' landscape and visual effects, in that the level of landscape and visual effect is determined by assessing the sensitivity of the landscape or visual receptor and the magnitude of change. Cumulative assessment however considers the magnitude of change posed by multiple developments.

- 8.6.11 The cumulative assessment would accord with NS guidance (2021) and will be prepared to ensure that, as well as the effects of the Proposed Development (LVIA), the 'additional' cumulative effects and the 'combined' cumulative effects (CLVIA) are also reported to account for two cumulative Scenarios as follows:
- Proposed Development:
Assessed on an individual basis (the LVIA). This part of the assessment may take account of other existing forms of wind farm development that may be present in the landscape, whilst recognising that their influence on landscape character is likely to be time limited. It does not consider the additional or combined cumulative effects and only reports of the effect of the proposed development alone;
 - Scenario 1: Existing + Consented + the Proposed Development:
The additional and combined cumulative effects of the existing and consented wind energy developments with the Proposed Development will be assessed.
 - Scenario 2: Existing + Consented + Applications + the Proposed Development:
The additional and combined cumulative effects of the existing and consented wind energy developments and live applications (which would include schemes at planning appeal), with the Proposed Development will be assessed.
- 8.6.12 In addition, the cumulative assessment takes account of the timescales, as far as practicable, for the operation of the existing and consented developments.

Determining the Significance of Effects

- 8.6.13 Essentially, the level of landscape and visual effect (and whether this is significant) is determined by assessing the sensitivity of the landscape or visual receptor and the magnitude of change likely to be brought about by the Proposed Development. The time limited period for the assessment would cover the construction of the Proposed Development, its operation for a period of 35 years, and decommissioning. The assessment process would include iterative design and assessment, that would have regard to plan for the Proposed Development as though permanent and further assessment of any remaining, residual time limited effects that could not otherwise be mitigated or 'designed out'.
- 8.6.14 In accordance with the relevant EIA Regulations it is important to determine whether the predicted effects, resulting from the Proposed Development, are likely to be significant. Significant landscape and visual effects in most cases, relate to all those effects that result in a '**Substantial**' or a '**Substantial / Moderate**' effect as indicated in **Table 8.5**. In some circumstances, 'Moderate' levels of effect also have the potential, where the assessor so judges, to be considered as significant and these judgements are also highlighted in **bold** and explained as part of the assessment, where they occur.
- 8.6.15 A distinction has also been made between there being a variable 'range' of effects on a receptor, which has been expressed as 'Moderate to Negligible' for example.
- 8.6.16 The type of effect is also considered and may be direct or indirect; temporary or permanent (reversible); cumulative; and positive, neutral or negative. The assessment unavoidably involves a combination of both quantitative and subjective assessment and wherever possible a consensus of professional opinion has been sought through consultation, internal peer review, and the adoption of a systematic, impartial, and professional approach.

Table 8.5 Evaluation of Landscape and Visual effects

Magnitude of Change	Landscapes and Visual Sensitivity			
	High	Medium	Low	Very Low
High	Substantial	Substantial / Moderate	Moderate	Not used
High - Medium	Substantial	Substantial / Moderate	Moderate	
Medium	Substantial / Moderate	Moderate	Minor	
Medium - Low	Substantial / Moderate	Moderate	Minor	
Low	Moderate	Minor	Negligible	
Low – Very Low	Moderate	Negligible	Negligible	
Very Low	Minor	Negligible	Negligible	
Zero	None / No View			

Effects on the Special Landscape Qualities on the Knapdale NSA

- 8.6.17 The NSA is located approximately 14km south-west of the Proposed Development at its closest point, however, the nearest visible point (blade tip visibility) is at approximately 16km.
- 8.6.18 **Figure 8.7** illustrates the theoretical visibility (tip height) of the Proposed Development within the Knapdale NSA.
- 8.6.19 The ZTV pattern reflects the underlying landform within the Knapdale NSA and the percentages of theoretical visibility cover are summarised as follows:
- Total ZTV (to blade tip) coverage accounts for 24% of the entire Knapdale NSA (76% outwith ZTV); and
 - Total ZTV (to hub height) coverage accounts for 16% of the entire Knapdale NSA (84% outwith ZTV).
- 8.6.20 Eight viewpoints have been identified within and near the edge of the NSA, based on a review of its Special Landscape Qualities, and some of the most visited areas within the NSA. Viewpoints F1 to F7 (illustrated on **Figure 8.7** and **Figure 8.8e-h**) indicate very limited to no visibility of the Proposed Development. The main area of hub height visibility is from the summit of Cruach Mor Dunardry at approximately 19km with 360-degree panoramic views which will be visually represented and assessed in the LVIA as viewpoint 18. A number of other existing wind farms are also visible in the same angle of view as the Proposed Development including the closer A'Chruach Wind Farm at 11km, An Suidhe and Carraig Gheal. The existing Sròndoire and Allt Dearg wind farms are also visible further to the south-east from the summit. The other areas indicated as visibility within the NSA are largely within forested areas with no visibility of the Proposed Development. A description of each viewpoint is provided in **Table 8.3** above (and viewpoint 18 is described in **Table 8.2**). The northern parts of the NSA is also heavily influenced by A'Chruach Wind Farm which is located between the NSA and the Proposed Development, whilst the eastern parts of the NSA are also heavily influenced by the nearby existing Sròndoire and Alt Dearg wind farms.

- 8.6.21 With regards to night-time effects on the Knapdale NSA, as illustrated on wirelines of viewpoints F1 to F7 (**Figure 8.8e-h**), there is very limited to no hub height visibility from these locations within the NSA. Whilst there may be some hub height visibility from the summit of Cruach Mor Dunardry at over 19km, this is not promoted as a night-time viewpoint and people are less likely to walk up through the forest at night.
- 8.6.22 Considering the long distance and overall, very limited visibility of the Proposed Development within the entire NSA as illustrated on the ZTVs and wirelines, it is proposed that day and night-time effects on the Special Landscape Qualities of the Knapdale NSA are to be scoped out of the LVIA. As described above, the visual effect of viewpoint 18 will be, however, assessed in the LVIA. It is to be noted that the effects of the Special Landscape Qualities of the NSA were agreed to be scoped out with NS in September 2020 during consultation in relation to the previous scoping report.

Night-time Lighting Visual Assessment

- 8.6.23 Aviation warning lights attached to turbine hubs and towers are required on all proposed wind turbines ≥ 150 m in accordance with Article 222 of the UK Air Navigation Order (ANO) 2016, subject to any proposed lighting mitigation strategy which would be agreed with the CAA prior to undertaking the assessment. A proportionate Night-Time Assessment of the proposed aviation lighting will be undertaken to accord with NS guidance¹⁶ and focused on night-time visual effects. Night-time effects on landscape receptors are proposed to be scoped out. The assessment would be supported by maps indicating the ZTV of any proposed aviation warning lights and 4No. Night-time Viewpoints. However, in accordance with the NS Guidance, all 22 viewpoints reported in **Table 8.3** will have the lit turbines noted on the wirelines. The proposed Night-Time Viewpoints have been selected as being representative of locations where there are likely to be people at night and include roads and settlements as follows:
- Viewpoint 3 – Kilmaha;
 - Viewpoint 4 – Dalavich;
 - Viewpoint 7 – Strachur; and
 - Viewpoint 8 – Leanach.
- 8.6.24 A night-time ZTV of the turbine lighting positions at hub height and half tower height would accompany the visualisations which would aid the assessment.
- 8.6.25 The extent of the study area is likely to be restricted to 10-15km from the outer turbine positions according to the technical criteria of the proposed candidate light fixtures.

Ben Lui Wild Land Assessment (day and night-time effects)

- 8.6.26 As requested by NS in its response to the previous scoping report, a separate Wild Land Assessment will be conducted for the Ben Lui WLA covering both day and night-time effects. The WLA is located approximately 19km north-east of the Proposed Development at its closest point.
- 8.6.27 The assessment will be guided by the NatureScot, Assessing Impacts on Wild Land Areas – Technical Guidance, 2020; and the published WLA description:
- NatureScot, Description of Wild Land Area 6: Ben Lui, 2017.

¹⁶ NatureScot, General pre-application and scoping advice for onshore wind farms, September 2020

- 8.6.28 The wild land assessment will take account of all other cumulative wind farm development shown on **Figure 8.4**. We have also reviewed and given careful consideration to the other sites that were refused and consented in the wider area.
- 8.6.29 A number of site visits into the WLAs have been undertaken and the views will be illustrated to support the assessment. It is proposed to illustrate WLA 6 from three viewpoints (one photomontage and two other wirelines) which is proportionate. A number of other viewpoint locations have been examined as wirelines although it is not proposed to illustrate all of these. In addition, the WLA assessment will also examine the views from a number of Munros and Corbetts within the WLA.
- 8.6.30 **Figure 8.6** illustrates the theoretical visibility (tip height) of the Proposed Development within the Ben Lui WLA.
- 8.6.31 The ZTV pattern reflects the underlying landform within the Ben Lui WLA and the percentages of theoretical visibility cover are summarised as follows:
- Total ZTV (to blade tip) coverage accounts for 16% of the entire Ben Lui WLA (84% outwith ZTV); and
 - Total ZTV (to hub height) coverage accounts for 14% of the entire Ben Lui WLA (86% outwith ZTV).
- 8.6.32 The visibility of the Proposed Development is largely restricted to high tops (hill summits) and some south-west facing slopes. Three viewpoints (illustrated in **Figure 8.6**) are proposed as follows. It is to be noted that these viewpoints were agreed with NS in September 2020 during consultation in relation to the previous scoping report:
- Wild Land Viewpoint A: The Munro of Beinn Bhuidhe (also identified as LVIA viewpoint 19) (22.5km distance) – visibility restricted to summit top and an area of south-west facing slope near the summit. The main public access and walking route to the summit via Glen Fyne is completely outwith the ZTV until a walker reaches the main summit. This viewpoint will be illustrated as a photomontage and will be represented as a day and night-time viewpoint;
 - Wild Land Viewpoint B: The Corbett of Meall an Fhudair (28km distance) – visibility restricted to main summit and upper south / south-west facing flank. The majority of the main public access and walking route to the summit from Glen Falloch is outwith the ZTV until the south facing flank at Troisgeach. This viewpoint will be illustrated as a wireline; and
 - Wild Land Viewpoint C: The Munro of Ben Lui (32km distance) - visibility restricted to main summit and upper south-west facing slope. The majority of the main public access and walking route to the summit from Glen Lochy is outwith the ZTV until the south-west facing slope below the main summit. This viewpoint will be illustrated as a wireline.
- 8.6.33 There is no visibility of the Proposed Development from any valley areas within the WLA.
- 8.6.34 The Applicant would like NS to confirm which of the WLA 6 qualities included in the WLA descriptions should be assessed. In previous WLA assessments NS have agreed that some of the qualities should be excluded as they only relate to physical characteristics that cannot be affected by the Proposed Development beyond the WLA boundary for example.
- 8.6.35 Two of the four qualities for WLA 6 are proposed to be included in the assessment, as follows:
- Rugged and highly natural mountains, penetrated by steep-sided glens that contain well-used routes and provide arresting views; and
 - A landscape that generally well-defined by surrounding human elements in views from higher slopes.

- 8.6.36 The remaining two qualities relating to *"human artefacts within the WLA"* and the *"contrast in physical characteristics between the mountains within the WLA"* are proposed to be excluded from the assessment given neither of these areas within the WLA descriptions would be directly affected by the Proposed Development.
- 8.6.37 Night-time effects on the wild land qualities of the Ben Lui WLA would be included as part of a Night-time Wild Land Assessment. It is proposed that one night-time viewpoint location from the summit of Beinn Bhuidhe (Wild Land Viewpoint A) would be illustrated to support the assessment given there is no hub height visibility of the Proposed Development from any of the valley areas within the WLA.

9. Historic Environment

9.1 Introduction

- 9.1.1 This chapter considers the historic environment impacts associated with the Proposed Development. It describes the key considerations of the historic environment on and surrounding the Development Site, including the archaeological and built heritage potential of the surrounding landscape. The chapter should be read in conjunction with Chapter 2: Project Description.

9.2 Relevant legislation, planning policy, technical guidance

Planning policy context

- 9.2.1 In addition to those contained within Scottish Planning Policy (SPP) and the National Planning Framework 3 (NPF3), relevant national policies are contained within the Historic Environment Policy for Scotland (HEPS) and advice relating to archaeological matters is detailed within Historic Environment Scotland's (HES) *Managing Change in the Historic Environment* guidance note series.
- 9.2.2 The current Development Plan for the Development Site is the Argyll and Bute Local Development Plan (LDP) (adopted in March 2015). A revised Local Development Plan (LDP2) concluded its consultation phase in January 2020 and is currently undergoing independent examination by a Scottish Government-appointed Reporter (due to commence May 2022). The Examination is expected to be completed by October 2022, with an anticipated date for Adoption of LDP2 in January 2023.
- 9.2.3 A summary of the relevant planning policies is given in **Table 9.1**.

Table 9.1 Planning policy issues relevant to historic environment

Policy reference	Policy issue
National planning policies	
SPP, Paragraph 169	Identifies a number of considerations which are likely to be relevant when determining the Proposed Scheme, including "impacts on the historic environment, including scheduled monuments, listed buildings and their settings".
SPP: Valuing the Historic Environment Subject Policy, Paragraph 137	This states that planning should "promote the care and protection of the designated and non-designated historic environment (including individual assets, related settings and the wider cultural landscape)".
SPP: Valuing the Historic Environment Subject Policy, Paragraph 140	This requires the siting and design of proposed developments to take account of "all aspects of the historic environment".
SPP: Valuing the Historic Environment Subject Policy, Paragraph 141	This relates to listed buildings, stating that "where planning permission and listed building consent are sought for development to, or affecting, a listed building, special regard must be given to the importance of preserving and enhancing the building, its setting and any features of special architectural or historic interest. The layout, design, materials, scale, siting and use of any development which will affect a listed building, or its setting should be appropriate to the character and appearance of the building and setting".

Policy reference	Policy issue
SPP: Valuing the Historic Environment Subject Policy, Paragraph 143	This relates to conservation areas, stating that <i>"proposals for development within conservation areas and proposals outwith which will impact on its appearance, character or setting, should preserve or enhance the character and appearance of the conservation area"</i> .
SPP: Valuing the Historic Environment Subject Policy, Paragraph 145	This relates to scheduled monuments, stating that <i>"where there is potential for a proposed development to have an adverse effect on a scheduled monument or on the integrity of its setting, permission should only be granted where there are exceptional circumstances"</i> .
SPP: Valuing the Historic Environment Subject Policy, Paragraph 148	In relation to gardens and designed landscapes, paragraph 148 states that <i>"planning authorities should protect and, where appropriate, seek to enhance gardens and designed landscapes included in the Inventory of Gardens and Designed Landscapes and designed landscapes of regional and local importance"</i> .
SPP: Valuing the Historic Environment Subject Policy, Paragraph 150	This relates to archaeology, stating that <i>"planning authorities should protect archaeological sites and monuments as an important, finite and non-renewable resource and preserve them in situ wherever possible. Where in situ preservation is not possible, planning authorities should, through the use of conditions or a legal obligation, ensure that developers undertake appropriate excavation, recording, analysis, publication and archiving before and/or during development"</i> .
SPP: Valuing the Historic Environment Subject Policy, Paragraph 151	In relation to historic assets which are not afforded statutory protection, this paragraph states that <i>"planning authorities should protect and preserve significant resources as far as possible, in situ wherever feasible"</i> .
HEPS HEP1	Development decisions should take the significance of the historic environment into account.
HEPS HEP2	The historic environment should be protected so that it can be understood and enjoyed and its benefits secured for future generations.
HEPS HEP3 and HEP4	<i>"Plans, programmes, policies and strategies"</i> devised to manage change should consider the historic environment. Change should be managed to conserve the historic environment, and where detrimental impact is unavoidable it should be minimised.
HEPS HEP5 and HEP6	These policies emphasise the need for working together by giving consideration to communities and individuals in decisions which affect the historic environment.
Argyll and Bute Local Development Plan	
Argyll and Bute LDP, 2015, Policy LDP3: Supporting the Protection, Conservation and Enhancement of our Environment	The policy states, among other considerations, that a <i>'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.</i>

Policy reference	Policy issue
	<i>(E) has significant adverse effects, including cumulative effects, on the special qualities or integrity of locally designated natural and built environment sites.</i> <i>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."</i>
Argyll and Bute LDP2 (Pending)	This document is set to replace the existing LDP on adoption and reference to LDP policies will be updated accordingly.

Legislation

9.2.4 The following legislation is relevant to the assessment of the effects on historic environment receptors:

- *Historic Buildings and Ancient Monuments Act 1953;*
- *Ancient Monuments and Archaeological Areas Act 1979;*
- *Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997;*
- *Environmental Assessment (Scotland) Act 2005;*
- *Historic Environment (Amendment) (Scotland) Act 2011; and*
- *Historic Environment Scotland Act 2014.*

Technical guidance

9.2.5 The following technical guidance produced by HES and the Chartered Institute for Archaeologists (CIfA) is relevant to the assessment of the effects on historic environment receptors:

- *Designation Policy and Selection Guidance*¹⁷;
- *Managing Change in the Historic Environment – Setting*¹⁸;
- *Standard and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment*¹⁹; and
- *Standard and guidance for historic environment desk-based assessment*²⁰.

¹⁷ Historic Environment Scotland, 2019 Designation Policy and Selection Guidance.

¹⁸ Historic Environment Scotland, 2020 Managing Change in the Historic Environment – Setting.

¹⁹ Chartered Institute for Archaeologists, 2014 Standard and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment.

²⁰ Chartered Institute for Archaeologists, 2017 Standard and guidance for historic environment desk-based assessment.

9.3 Baseline Conditions

Data gathering methodology

- 9.3.1 The EIA Scoping exercise has been undertaken with reference to **Chapter 2: Project Description**, supported by a number of data sources. The principal data sources used to inform this chapter for potential effects comprise the following:
- Designated historic environment spatial data and Historic Landuse Assessment (HLA) mapping from HES;
 - Non-designated historic environment spatial data, from West of Scotland Archaeology Service (WoSAS) viewed online at the HES Pastmap²¹; and
 - Historic mapping from National Library of Scotland (NLS).

Current baseline

- 9.3.2 The Proposed Development is located within an area of planted commercial forestry land interspersed with areas of rough grazing.
- 9.3.3 Within the Proposed Development area and the wider Development Site, there are no designated heritage assets. The information for non-designated assets available through Pastmap does illustrate the presence of numerous non-designated heritage features including sheilings, drove roads and cairns.
- 9.3.4 A number of designated assets that may be subject to indirect effects are present within the ZTV of the proposed layout.

Future baseline

- 9.3.5 No changes are anticipated in the baseline condition prior to the Proposed Development being constructed and operated. The Development Site will continue to be managed as planted woodland and rough grazing.

9.4 Consultation

- 9.4.1 It is anticipated that consultation with HES and WoSAS will be undertaken during the course of the EIA (for example to agree upon the finalised selection of heritage assets for further assessment).

9.5 Scope of Assessment

Study area

- 9.5.1 The study area for the Historic Environment chapter covers a buffer distance of 500m from the Development Site boundary to assess the potential for designated and non-designated heritage assets which may be subject to direct effects. An extended study area of 10km from the Development Site boundary would be used to identify designated and nationally important heritage assets which may be subject to indirect effects (**Figure 9.1** in **Appendix A**).

²¹ <https://www.pastmap.org.uk/>, last accessed 18/03/2020

- 9.5.2 Data on the historic environment would be obtained from:
- Argyll and Bute Historic Environment Record, accessed through West of Scotland Archaeology Service (WoSAS);
 - Historic Environment Scotland spatial datasets of designated heritage assets and historic land-use assessment (HLA);
 - Archaeological information retained in the National Monuments Record of Scotland (NMRS);
 - Historic mapping in the National Library of Scotland and National Archives of Scotland; and
 - Other readily accessible sources of archival or cartographic information.
- 9.5.3 Due to the nature of indirect effects being predominantly related to the visibility to, or from, a heritage asset, the full scope of indirect effects would be determined with reference to the finalised ZTV for the Proposed Development. This scope would also inform whether any further photomontage or wireframe visualisation not already incorporated into the LVIA assessment will be required to support the assessment of historic assets.
- 9.5.4 An assessment of how views of the Proposed Development may affect the understanding and experience of heritage assets will be undertaken and where views of, or from, these assets towards the Development Site could contribute to their setting, these would be assessed further and visited where possible.
- 9.5.5 Any previously recorded heritage assets within the HER or previously unknown non-designated heritage assets identified through assessment that would be susceptible to disturbance as a result of the construction of the Proposed Development would be included within the assessment of effects.
- 9.5.6 The temporal scope of the assessment of Historic Environment effects is consistent with the period over which the Proposed Development would be carried out and therefore covers the preparation and construction periods, followed by care and maintenance and eventual decommissioning.

Potential receptors

- 9.5.7 It is anticipated that designated historic environment receptors that will require detailed assessment for indirect effects within the EIA will include:
- Inveraray Castle Inventory Garden & Designed Landscape (GDL00223) together with the associated Category A Watch Tower, Dun Na Cuaiche (LB11543);
 - Lochfyne Gunpowder Works, Furnace (SM5813);
 - The scheduled Chapel of Kilbride (SM3337);
 - The scheduled Lachlan Castle (SM292);
 - The scheduled Glasvaar cupmarked rock (SM5476);
 - Scheduled medieval and prehistoric assets at Torran;
 - Scheduled Crannogs (SM4141, SM4146 and SM4185) on Loch Awe;
 - The scheduled Chapel, Settlement and Rock Carvings at Rubha na Fidhle, on Loch Awe (SM288);
 - The scheduled Chapel at Innis Errich, Loch Awe (SM4214);
 - The Category B Strachur House (LB18180), Lodge and Gateway (LB18183);

- The scheduled An Dun fort (SM3522); and
- Assets of national significance requested for further assessment by stakeholders.

Likely significant effects

- 9.5.8 The likely significant effects that will be taken forward for assessment in the EIA Report are summarised in **Table 9.2**.

Table 9.2 Likely significant historic environment effects

Stage of development	Potential direct effects	Potential indirect effects
Construction	Disturbance of archaeological remains within the development site through the construction of access tracks, turbines, movement of plant and associated infrastructure or borrow pits.	Visual and audible disturbance of nearby heritage assets through plant movement and construction operations
Operation	None	The Proposed Development would be a perceptual element in views from and to nearby heritage assets.
Decommissioning	None	Visual and audible disturbance of nearby heritage assets through plant movement and decommissioning operations.

- 9.5.9 It is considered that designated heritage assets other than those listed within paragraph 9.5.7 do not have the potential to be subject to significant adverse effects and as such only the identified heritage assets will be assessed further in the EIA Report, subject to review where development proposals are amended.

9.6 Assessment Methodology

- 9.6.1 The proposed generic project-wide approach to the assessment methodology is set out in Chapter 4, and specifically in Section 4.3. However, whilst this will inform the approach that will be taken for the Historic Environment assessment, it is necessary to set out how this methodology will be applied, and adapted as appropriate, to address the specific needs of the Historic Environment assessment for the EIA.

General approach

- 9.6.2 Aspects of the Historic Environment that are considered by this assessment consist of designated and non-designated heritage assets within and near the Site, as well as designated heritage assets within the wider landscape. Non-designated heritage assets can include artefacts find locations, sites of archaeological interest or surviving structures and manmade features within the landscape that are of historic interest but are not statutorily protected. Designated heritage assets are statutorily protected and include listed buildings, scheduled monuments, inventory gardens and designed landscapes and conservation areas.

Determination of significance

- 9.6.3 **Table 9.3** details the basis for assessing receptor importance. The rationale is predominantly based on information provided within SPP and HEPS. Note that categorisation of those assets which are of less than national importance generally relies on professional judgement.

Table 9.3 Establishing the importance of receptors

Importance	Receptor type	Sensitivity
High	Designated heritage assets including Scheduled Monuments, Category A listed buildings, Inventory Battlefields and Designed Landscapes.	These assets are considered highly sensitive due to their national importance, and it is possible that low-moderate impacts upon these assets or their settings could lead to significant effects.
Medium	Category B and C Listed Buildings, Conservation Areas, parks and historic landscapes recognised by local and regional designations and non-designated sites and monuments of regional importance	These assets are best seen as of regional, or more than local importance and their sensitivity will largely depend upon their current setting and their character. It is possible that moderate-high impacts upon these assets or their settings could lead to significant effects.
Low	Non-designated assets of local importance.	These include assets of local interest, some of which no longer survive and may have limited potential for survival of archaeological material. Although these assets must be considered and mitigation may be required, significant effects are only likely if the assets were to be predominantly or totally destroyed as a result of the Proposed Works.
Negligible	Historic features of note but which cannot be considered heritage assets in their own right.	Due to its nature of form / condition / survival, the feature cannot be considered an asset in its own right, but may inform the EIA or suggest the potential for further remains (e.g. non-extant HER record, chance find, record of recorded feature that cannot be located).

- 9.6.4 The significance of an effect resulting from a proposed development during construction or operation is most commonly assessed by reference to the sensitivity (or value) of a receptor and the magnitude of the effect upon the asset and its setting. This approach provides a mechanism for identifying areas where mitigation measures may be required and to identify the most appropriate measures to alleviate the risk presented by the proposed development.
- 9.6.5 Magnitude of change is a measure of the extent to which the significance of an asset would be disturbed or lost.
- 9.6.6 In respect of buried archaeological deposits, where no remains are visible above ground, this would arise from direct disturbance or removal of archaeological material. Direct loss, damage or alteration of a structure would not only affect architectural value, but could also result in the loss of elements valued for their archaeological potential or historic associations.
- 9.6.7 The setting of any particular asset is unique and may comprise both tangible and intangible aspects of the assets' context which contribute to how they may be understood, appreciated and experienced. The effects of change in the setting of a heritage asset depends on the contribution of that setting to the significance of the asset, and assessments must be, by their nature, specific to the individual assets being considered.
- 9.6.8 The magnitude of change (or impact) is based on the extent to which the significance of an asset is affected, which can be influenced by a number of factors:
- the permanence of the impact (temporary, permanent or reversible);
 - changes caused by the impact (both positive and negative); and
- 9.6.9 the extent or aspect of the heritage asset or its setting that would be affected (for example, the whole or a very small part) and the contribution of that part to the historic value of the asset.
- 9.6.10 **Table 9.4** details the basis for assessing magnitude of change.

Table 9.4 Establishing the magnitude of change

Magnitude	Criteria (Adverse)	Criteria (Beneficial)
High	Total or substantial demolition / disturbance of a heritage asset, or disassociation of an asset from its setting.	Sympathetic restoration of an at-risk or otherwise degraded heritage asset and/or its setting. Bringing an at-risk heritage asset into sustainable use, with robust long-term management secured.
Medium	Partial disturbance or inappropriate alteration of a heritage asset. Change to the key characteristics of a heritage asset's setting, which affects the importance of the asset, but which still allows its cultural significance to be appreciated.	Appropriate stabilisation and/or enhancement of a heritage asset and/or its setting that better reveal the significance of the asset or contribute to a long-term sustainable use or management regime.
Low	Minor loss to or alteration of an asset which leave its current importance largely intact. Minor and short term changes to setting which do not affect the key characteristics and in which the historical context remains substantially intact.	Minor enhancements to a heritage asset and/or its setting that better reveal its significance or contribute to sustainable use and management.
Negligible	Minor alteration of an asset which does not discernibly affect its importance. Minor and short term or reversible change to setting which do not affect the asset.	Minor alteration of an asset which does not affect its significance in any discernible way. Minor and/or short-term or reversible change to setting which does not affect the significance of the asset.

Limitations

Some assets earmarked for detailed assessment may not be safely accessible for site visits owing to land access restrictions through private ownership or other safety concerns. Where applicable, these restrictions will be noted in the EIA chapter text and where relevant visualisations will be sought to compensate for this.

10. Ecology

10.1 Introduction

- 10.1.1 The Ecology chapter of the EIA Report will identify the baseline ecology of the Development Site and the surrounding area and will assess the potential effects on any ecological features that are considered to be important during the construction, operation and decommissioning of the Proposed Development. National and Local planning policies, best practice guidance, the outcome of consultation and any mitigation will be taken into account in the ecological impact assessment.

10.2 Baseline Conditions

Consultation

- 10.2.1 Baseline surveys on the nature conservation interest of the Development Site and its surroundings (up to 5km for statutory sites and bats and 2km for non-statutory sites and protected and notable species and habitats) were undertaken, as detailed below. An ecology desk study was undertaken with the aim to identify protected and/or notable species and habitats. Consultations have been undertaken with Forest and Land Scotland (FLS), NatureScot and Scottish Wildlife Trust (SWT) to seek data and, with respect to NatureScot, agreement regarding the proposed scope of surveys.

Data Sources

Desk-study

- 10.2.2 A desk-based data gathering exercise was undertaken in 2020 to obtain existing information relating to relevant ecological features, these being: statutory and non-statutory biodiversity sites; habitats and species of principal importance as set out in the Scottish Biodiversity List (SBL); legally protected and controlled species, and other notable and protected species. The following data sources were consulted as part of the desk-study:
- Information regarding statutory and non-statutory designated sites (within an approximate 5km radius of the Site boundary for statutory sites and a 2km radius for non-statutory sites) was acquired using the NatureScot (formerly Scottish Natural Heritage) Sitelink²² and Multi-agency Geographic Information for the Countryside (MAGIC)²³ web-based applications;
 - Commercially available records of protection and/or notable species within the last ten years were searched within the National Biodiversity Atlas (NBN) database²⁴;
 - A data request for records of protected and/or notable species within a 2km radius of the Site boundary (extended to 5km for bat species) was submitted to Argyll Biological Records Centre (ABReC). Analysis of species data focussed only on records made within the last ten years, as older records may give an inaccurate picture of the current ecological interest within the Site and the surrounding area;

²² <http://sitelink.nature.scot/home>

²³ <http://magic.defra.gov.uk>

²⁴ <https://nbnatlas.org>

- A data request was also made to FLS for records relating to protected/ notable species within 2km of the Site boundary; and
- A search to determine the potential habitats and features of interest was conducted using 1:25:000 scale Ordnance survey maps²⁵ and aerial imagery from (Google Maps²⁶ and Google Earth²⁷ websites)

Field Survey 2020

- 10.2.3 **Extended Phase 1 Habitat Survey** – An extended Phase 1 habitat survey was completed on 27th to 31st July 2020 within the Development Site boundary following the standard habitat survey method described in the Handbook for Phase 1 Habitat Survey: a technique for environmental audit²⁸ (JNCC, 2010). Habitats within 250m of the Site boundary were mapped where accessible. The extended Phase 1 habitat survey characterised the habitats present on site and included an initial assessment of habitat suitability to support protected species, including otter, water vole, badger, pine marten, red squirrel, herpetile species, fish and a bat roost suitability assessment.
- 10.2.4 **National Vegetation Classification (NVC) Survey** – An NVC survey was undertaken on 14th to 18th September 2020 to provide greater detail on the vegetation communities present within the Development Site and to identify the potential presence of vegetation communities of nature conservation importance. The identification and mapping of dominant NVC plant communities was carried out in accordance with standard guidance²⁹. As per SEPA requirements, this included wetland habitats, such as marshy grassland and wet heath, which have potential to be Ground Water Dependent Terrestrial Ecosystems (GWDTEs).
- 10.2.5 **Aquatic Mammal Survey** – Otter and water vole surveys were undertaken on 7th-8th July 2020 and 29th-30th September 2020 along watercourses and water bodies within the Development Site boundary (and up to a maximum of 250m outwith this area where accessible). The surveys were carried out in accordance with standard methodologies (e.g. Chanin, 2003³⁰). Given the time elapsed since these surveys were undertaken, these surveys will have to be updated to ensure the most up to date survey information is available to inform the assessment. The survey will also be extended to include the access track.
- 10.2.6 **Fisheries surveys** – An assessment of fish habitats at 50 sampling stations was undertaken between the 12th and 14th September 2020 in accordance with good practice (Hendry and Cragg-Hine, 1997; EA, 2003 and SFCC, 2007). An assessment of species composition and abundance of fish fauna was carried out using electric fishing techniques. The methodology conformed to guidelines developed by the Scottish Fisheries Coordination Centre (SFCC) and to British Standard guidance (BS EN 14011:2003). Electric fishing was undertaken at 17 sampling stations during September 2021 under licence issued by Marine Scotland (Ref: CSM 20-124). Surveys were carried out by two experienced operators, both certified to SFCC standards, and with one qualified to SVQ Level III.

²⁵ www.ordnancesurvey.co.uk

²⁶ www.maps.google.co.uk

²⁷ <http://earth.google.co.uk>

²⁸ JNCC (2010). Handbook for Phase 1 habitat survey – a technique for environmental audit.

²⁹ Rowdell, J S (ed) (1991a) British Plant Communities Vol. 1: woodlands and scrub. Cambridge University Press, Cambridge; Rodwell, J S (ed.) (1991b) British Plant Communities, Vol. 2: mires and heaths. Cambridge University Press, Cambridge; and Rodwell, J S (ed) (1992) British Plant Communities, Vol 3: grasslands and montane communities. Cambridge University Press, Cambridge.

³⁰ Chanin, P. (2003). Monitoring the Otter Lutra. Conserving Nature 2000 River Monitoring Series No 10. English Nature: Peterborough.

10.2.7 **Bat surveys** – Survey adhered to Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation (2019) guidelines³¹. Areas with high bat potential within 250m of the Development Site boundary were investigated in order to identify potentially important roost sites. Based on an initial site risk assessment, the scale of the development (and presence of other wind developments within 5km) identified the Development Site as 'large' project size. In terms of habitat risk, the coniferous plantation that covers much of the Site is considered to support low suitability for roosting bats, with edge habitat providing moderate suitability for commuting bats. The open upland habitat and associated lochans may provide open commuting pathways, with foraging opportunities over waterbodies. In addition, the presence of linear features such as watercourses may serve as commuting pathways and provide added foraging opportunities within the Study Area. The Abhainn a' Bhealaich watercourse also provides habitat connectivity downgradient towards Loch Awe, where stands of ancient woodland and built structures may support commuting, foraging, and potentially roosting, bats. Based on these observations, the habitats risk has therefore been assessed as 'moderate' and the initial site risk assessment score for the Site is 'high'. Ground based monitoring using full spectrum static (SM4) bat detectors was undertaken for a minimum of 10 consecutive nights during each of the Spring, Summer and Autumn seasons in accordance with the stated best practice. In order to provide a representative sample of bat activity across the Study Area, detectors were placed at/near proposed turbine locations, as well as in areas of suitable bat habitat.

Current Baseline

- 10.2.8 The Proposed Development is located within an extensive area of commercial plantation forestry which dominates the Proposed Development area along with areas of open upland moorland. The Development Site is surrounded by a mixture of coniferous plantation woodland and upland open moorland habitat with Loch Awe located approximately 1km north of the Development Site.
- 10.2.9 A detailed desk study was undertaken as part of the baseline study and showed a total of two designated sites of national importance (SSSI) are located within 10km of the Site boundary. Several non-statutory designated sites in the form of ancient woodland are present within 2km of the Site boundary.
- 10.2.10 Automated bat activity surveys, vegetation and protected species field surveys were undertaken on the Development Site during 2020 forming a baseline to inform the assessment of potential impacts of the proposed wind farm.
- 10.2.11 The following provides a baseline summary from the surveys undertaken in 2020:
- The Site is situated within an area of land positioned between two large bodies of open water – Loch Awe to the north-west, and Loch Fyne to the south-east. Numerous fresh water lochans and ponds are present within the Site, which are drained by a network of watercourses. Those to the north are drained by the Abhainn a' Bhealaich and associated tributaries (which eventually flow into Loch Awe) while those to the north-east are drained by the Douglas Water and those to the south are drained by the Abhainn Dubhann and Leacann Water (all of which flow into Loch Fyne). The far south-west of the site is drained by the River Add. Habitats within the Site are comprised primarily of coniferous plantation woodland, with open upland habitats within the north west, a further band of open upland habitats stretching in a north east to south west direction to the south of the Site.
 - The dominant habitats are coniferous plantation woodland along with areas of acid grassland, marshy grassland, blanket bog, wet modified bog, and wet heath.

³¹ NatureScot (2019). Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation.

- Evidence of water vole was recorded as burrows, droppings and clippings. Suitable water vole habitat exists in marshy grassland that borders watercourses and lochans within the study area.
- Multiple signs of otter activity were recorded throughout the whole of the Development Site along watercourses and lochans including holts, couches and spraints along with many potential holts and couches.
- No evidence of badger activity was confirmed in the study area during 2020.
- The bat survey results indicate that at least four bat species/ species groups utilise the Study Area: common pipistrelle, soprano pipistrelle, brown long-eared bat, and bats of the genera Myotis. The activity levels and distribution recorded suggest that bats utilise the Study Area for commuting and foraging, with a potential soprano pipistrelle roost located within commuting distance. Soprano pipistrelle was the most frequently encountered species during the activity survey, with contacts recorded at all monitoring locations within the Study Area. This indicates that soprano pipistrelle utilise the linear flyways and open habitats near which proposed turbines may be sited.
- The desk study returned records of roosting soprano pipistrelle within 10km of the study area. Additional data from FLS indicates bat boxes within 1.5km of the Development Site boundary, which may support soprano pipistrelle. Myotis was the second most commonly encountered species/ species group of the activity survey. The greatest level of Myotis activity was recorded in summer along woodland edge habitat. Activity surveys recorded an overall low to moderate level of brown long-eared bat activity, with periods of moderate to high activity also recorded.
- The fisheries surveys showed the presence of brown trout at 11 of the 17 sample locations. No other salmonid species and no other species of note were recorded.

Further Survey

- 10.2.12 Further surveys will be undertaken in 2022 in order to update the baseline, where necessary. This will include otter and water vole survey in order to keep the survey baseline up to date for these species. NatureScot advises that pre-application surveys remain valid for two years, and should be repeated if the application is delayed beyond that. Given the mobile nature of otter and water vole and the potential for delays on site due to the presence of these species, these surveys are proposed in order to update mitigation measures where required.

10.3 Assessment Methodology

Legislation, Policy and Guidance

- 10.3.1 The assessment will be undertaken in line with the following legislation and guidance:
- Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive)³² implemented in Scotland by the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland)³³. The Conservation of Habitats and Species Regulations (2017) also applies in Scotland in relation to certain specific activities (reserved matters) for consents sought under Section 36 of the Electricity Act 1989;

³² European Commission (1992). Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.

³³ <http://legislation.gov.uk/ukxi/1994/2716/contents/made>

- Natura 2000 Guidance Document 'Wind Energy Developments and Natura 2000'³⁴;
- The Natura Conservation (Scotland) Act 2004 (as amended)³⁵;
- The Wildlife and Countryside (Scotland) Act 2004 (as amended in Scotland)³⁶;
- CIEEM (2019). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine³⁷;
- The Argyll And Bute Local Biodiversity Action Plan (LBAP)³⁸;
- The Scottish Biodiversity List³⁹;
- Engineering in the water environment good practice guide: river crossings⁴⁰;
- Land Use Planning System SEPA Guidance Note 4⁴¹;
- Habitats and Birds Directive, Nature Conservation; Implementation in Scotland of EC Directives on the Conservation of Natural Habitats and of Wild Flora and Fauna and the Conservation of Wild Birds ('the Habitats and Birds Directives')⁴²;
- Environmental Impact Assessment Handbook⁴³; and
- Research and guidance on restoration and decommissioning of onshore wind farms⁴⁴.

Methodology for Assessing Ecological Features

- 10.3.2 An Ecology EIA Report chapter will be produced that will summarise the findings of the desk study, survey and consultation. This will form the baseline against which the potential impacts of the Proposed Development, alone and cumulatively with other wind farm developments would be assessed, based on both the importance of ecological features and nature and magnitude of the impacts from the Proposed Development. Any mitigation considered necessary will be identified and residual effects with this in place will be determined.
- 10.3.3 The significance of the effects resulting from the Proposed Development will primarily be determined by the value of a given ecological feature and the magnitude of change.
- 10.3.4 Adverse effects will be assessed as being significant if the favourable conservation status of an ecological feature would be lost as a result of the Proposed Development. Beneficial effects will be

³⁴ European Commission (2010). *Natura 2000 Guidance Document 'Wind Energy Developments and Natura 2000*. Brussels: European Commission

³⁵ *Nature Conservation (Scotland) Act 2004*.

³⁶ *Wildlife and Countryside Act 1981*. UK: The Stationery Office.

³⁷ Chartered Institute of Ecology and Environment Management (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Winchester: Chartered Institute of Ecology and Environmental Management.

³⁸ The Argyll and Bute Biodiversity Action Plan 2010-2015.

³⁹ Scottish Natural Heritage (2005). *Scottish Biodiversity List*.

⁴⁰ SEPA (2010). *Engineering in the water environment good practice guide – river crossings*.

⁴¹ SEPA (2010). *Land Use Planning System SEPA Guidance Note 4: Planning Guidance on on-shore windfarm developments*.

⁴² Scottish Executive Rural Affairs Department (2000). *Habitats and Birds Directives, Nature Conservation; Implementation in Scotland of EC Directives on the Conservation of Natural Habitats and of Wild Flora and Fauna and the Conservation of Wild Birds ('the Habitats and Birds Directives')*. Revised Guidance Updating Scottish Office Circular No 6/1995.

⁴³ Scottish Natural Heritage (2018). *Environment Impact Assessment Handbook – Version 5: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment process in Scotland*.

⁴⁴ Scottish Natural Heritage (2013). *Commissioned Report No. 591 Research and guidance on restoration and decommissioning of onshore wind farms*.

assessed as those where a resulting change from baseline improves the quality of the environment (e.g. increases in species diversity, increases in the extent of a particular habitat etc., or halts or slows down in an existing decline).

10.3.5 Conservation status is defined as follows (as per CIEEM, 2018)³⁷.

"For habitats, conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and typical species within a given geographical area:

For species, conservation status is determined by the sum of influence acting on the species concerned that may affect its abundance and distribution within a given geographical area."

10.3.6 The decision as to whether the conservation status of an ecological feature would alter will be made using professional judgement, drawing upon the information produced through the desk study, field survey and assessment of how each feature is likely to be affected by the Proposed Development.

10.3.7 A similar procedure will be used where designated sites may be affected by the Proposed Development, except that the focus will be on the effects on the integrity of each site; defined as:

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

10.3.8 The assessment of effects on integrity draws upon the assessment of effects on the conservation status of the features for which the Development Site has been designated. Where these features are not clearly defined, which is often the case for non-statutory biodiversity sites, it will be necessary to use professional judgement to identify the interest features or obtain additional information about the interest features from NatureScot, SEPA, Scottish Wildlife Trust, ABC, or those responsible for identifying these sites, so that sufficient information on which to base an assessment is available.

11. Ornithology

11.1 Introduction

- 11.1.1 The Ornithology chapter of the EIA Report will set out the desk study and survey work undertaken to define the baseline of the Proposed Development and the surrounding area. The results of this work will be summarised (with details presented in baseline reports appended to the EIA Report) and will provide the basis for the determination of potential effects on any ornithological features that are considered to be important. National and local planning policies, best practice guidance, the outcome of consultation and any mitigation identified will be considered in the ornithological impact assessment.
- 11.1.2 The ornithology assessment would be undertaken in accordance with best practice guidance including the following:
- Council Directive 2009/147/EC on the conservation of wild birds (the Birds Directive);
 - The Wildlife & Countryside Act 1981 (as amended);
 - The Nature Conservation (Scotland) Act (2004);
 - The Wildlife and Natural Environment (Scotland) Act 2011;
 - Recommended bird survey methods to inform impact assessment of onshore wind farms (NatureScot 2017⁴⁵);
 - Assessing significance of impacts from onshore wind farms outwith designated areas (NatureScot 2018a⁴⁶);
 - Avoidance Rates for the onshore SNH Wind Farm Collision Risk Model (NatureScot 2018b⁴⁷); and
 - Assessing the cumulative impacts of onshore wind farms on birds (NatureScot 2018c⁴⁸).

11.2 Baseline Conditions

Consultation

- 11.2.1 Comments on the initial Scoping Report (submitted in June 2020), were received from NatureScot in August 2020 and the RSPB in July 2020. Subsequently, post-scoping consultation was undertaken with NatureScot in March 2021. These comments will be used to inform the ornithological impact

⁴⁵ NatureScot. 2017. Guidance Note – Recommended bird survey methods to inform impact assessment of onshore windfarms. See: <https://www.nature.scot/doc/recommended-bird-survey-methods-inform-impact-assessment-onshore-windfarms> accessed on 27 May 2022.

⁴⁶ NatureScot. 2018. Guidance note - Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas. See: <https://www.nature.scot/doc/guidance-assessing-significance-impacts-bird-populations-onshore-wind-farms-do-not-affect-protected> accessed on 27 May 2022.

⁴⁷ NatureScot. 2018b. Wind farm impacts on birds - Use of Avoidance Rates in the NatureScot Wind Farm Collision Risk Model. See: <https://www.nature.scot/doc/wind-farm-impacts-birds-use-avoidance-rates-naturescot-wind-farm-collision-risk-model> accessed on 27 May 2022.

⁴⁸ NatureScot. 2018c. Guidance - Assessing the cumulative impacts of onshore wind farms on birds. See: <https://www.nature.scot/doc/guidance-assessing-cumulative-impacts-onshore-wind-farms-birds> accessed on 27 May 2022.

assessment and have been addressed in **Appendix A - Summary of Issues Highlighted within the Scoping Opinion.**

Desk Study

- 11.2.2 A desk study was undertaken in 2018, to identify statutory ornithological sites within 10 km of the Proposed Development. The desk-based exercise recorded that there were no Special Protection Areas (SPAs) within 10 km of the boundary of the Proposed Development. The closest SPA, Glen Fyne and Glen Etive, is situated approximately 12 km from the Proposed Development. The qualifying feature of this SPA is golden eagle.
- 11.2.3 Two golden eagle territories were identified, G/LAE1B to the north east of the Development Site boundary and G/LAE3 to the south west. RWE purchased satellite tracking data for three range holding adult golden eagles, with data on movements available from 01/03/17, 09/02/18 and 25/01/19 respectively, two of which are fitted to both members of the G/LAE3 pair. These data will be updated as the project progresses. As these are very large data sets, potentially providing location updates every few minutes, analyses of these data can provide an extremely robust assessment of golden eagle spatial and temporal use of land around the Development Site. These data are much more comprehensive than any that can be provided from Vantage Point survey work. Analysis of these data will be undertaken by Dr Alan Fielding who has considerable experience of analysing data from satellite tracked golden eagles.
- 11.2.4 The desk study will also be updated so that it accurately reflects local baseline information pertaining to ornithological receptors making it suitable to support a section 36 application. This will include:
- extending the scope of the desk-based exercise to 20 km for all SPAs and Ramsar Sites, as well as 10 km for all ornithologically notified SSSIs;
 - reviewing available bird data from Environmental Statements and EIA Reports for those wind farm developments located in proximity to the Proposed Development; and
 - data searches will be undertaken with the RSPB and Argyll Raptor Study Group (RSG).

Field Studies and Assessment

- 11.2.5 Bird surveys during the 2019 breeding season were undertaken by Scott Smith and Aiden MacCormick (Eagle Eyed Surveyors) with support from Alan Fielding. Surveys were also undertaken during the 2019/20 non-breeding season, the 2020 breeding season and the 2020/21 non-breeding season, representing a total of two years survey effort. Surveys covering an additional area were also undertaken in the 2021 breeding season and 2021/22 non-breeding season.
- 11.2.6 A brief summary of the methods used during ornithological surveys from March 2019 to March 2022 are provided herein along with a brief summary of the results.
- 11.2.7 Vantage Point watches were undertaken from five VPs between March 2019 and February 2022 inclusive (covering a period of two years), with a sixth VP added in August 2019 (which was surveyed until July 2021 inclusive, covering a period of two years). A seventh VP was added in May 2020 and an eighth was added in March 2021, with surveys from these two VP locations ending in March 2022. These surveys are designed to collect flight activity data that can subsequently be used in Collision Risk Modelling (CRM) to calculate theoretical collision risk. A total of 1,129 hours survey were undertaken during the survey period. A total of 144 hours of survey were undertaken at each of VP1-3, 147 hours at VP4, 145 hours at VP5, 180 hours at VP6, 150 hours at VP7 and 75 hours at VP8. In locations where turbines greater than 200m to tip height are proposed, all flights would be included in CRM.

- 11.2.8 VP watches lasted three hours with a minimum 30 minute interval before a surveyor began a second VP watch. VP surveys were timed to ensure that simultaneous overlap of spatial coverage was not an issue. Flights were recorded in 15 second intervals at four height bands: 0 – 40 m, 40 – 140 m, 140 – 200 m and >200 m.
- 11.2.9 A total of 13 'target species' were recorded during the survey period, comprising whooper swan, pink-footed goose, goosander, red-breasted merganser, black grouse, red-throated diver, black-throated diver, white-tailed eagle, osprey, golden eagle, hen harrier, goshawk and golden plover. Relatively low levels of flight activity were recorded for most target species (less than ten flights), except for red-throated diver (42 flights during VP plus a further 30 flights during focal watches), white-tailed eagle (32 flights), osprey (23 flights), golden eagle (97 flights) and hen harrier (12 flights).
- 11.2.10 A range of distribution and abundance surveys were undertaken during the 2019, 2021 and 2022 breeding seasons, comprising:
- Moorland breeding bird surveys used an adapted Brown and Shepherd (1993) method as recommended by current NatureScot guidance (NatureScot, 2017). Survey areas covered all appropriate habitat within the Development Site boundary and 500 m buffer around this, with four visits being undertaken from April to July 2019 and 2020;
 - Breeding raptor surveys covered the period March to August 2019 and 2020. Surveys were undertaken in line with NatureScot guidance and followed the species-specific methodologies outlined in Hardey *et al* (2013)⁴⁹ with golden eagle surveys extending to 6 km beyond the Development Site boundary and 2 km for all other raptors;
 - Breeding diver surveys were undertaken from April to August in 2019 and 2020 in line with NatureScot guidance (2017) and extended to a 2 km buffer beyond the Proposed Development boundary (additional diver surveys were undertaken in March and April 2021). Breeding diver focal watch surveys were undertaken at two locations, although surveys did not commence until August 2019;
 - Black grouse surveys were undertaken within a 1.5 km buffer of the Development Site and followed NatureScot guidance and the methodology in Gilbert *et al* (1998)⁵⁰ in both 2019 and 2020; and
 - If a distribution and abundance survey overlapped in time with a vantage point watch there was no overlap in space between the two ensuring that the presence of a surveyor did not disrupt the vantage point watch.
- 11.2.11 Key findings comprised:
- In 2019, the G/LAE1B golden eagle range had an occupied nest within the 6 km survey buffer of the Development Site on 18 April but had failed by 23 May. No active nests were located for the G/LAE3 golden eagle range but two potential eyries, close to the Development Site, were unused in 2019. No other nest sites of Schedule 1 or Annex I raptors or owls were found during the 2019 breeding season.
 - In 2020, the G/LAE3 golden eagle range had an occupied nest within the 6 km survey buffer of the Development Site, with a chick recorded within the nest in mid-July, although it is unknown if this nesting attempt was successful. The G/LAE1B golden eagle range had an occupied nest

⁴⁹ Hardey, J, Crick, H., Wernham, C., Riley, H., Etheridge, B., Thompson, D. 2013. *Raptors: A Field Guide to Surveying and Monitoring*. 3rd Edition.

⁵⁰ Gilbert, G., Gibbons, D.W. & Evans, J. 1998. *Bird Monitoring Methods*. RSPB, Sandy, UK.

within the 6 km survey buffer of the Development Site in June, although the nesting attempt failed when the chick died at approximately seven weeks old.

- There were three breeding attempts recorded by red-throated diver in 2019, two of which failed and one fledged a single chick. A single breeding attempt by black-throated diver was recorded, with an incubating adult recorded in May 2019 but there was no sign of any chick(s) during follow up surveys. There was insufficient activity to record 20-30 incoming/outgoing flights from breeding diver focal watch surveys but the overall VP viewshed coverage was sufficient to identify regular flight routes to and from breeding lochs.
- In 2020, a pair of black-throated divers bred on the same loch but failed at late egg/early chick stage. Three pairs of red-throated diver attempted to breed on the same three lochans used in 2019, with the same site, which was successful in 2019, also successful in 2020. The other two nesting attempts failed at the late egg/early chick stage.
- In 2021, a pair of black-throated divers fledged a single chick from the same loch used in 2019 and 2020. A pair of red-throated diver were also recorded exhibiting breeding behaviour indicative of protecting a chick in July 2021 on the same lochan where successful breeding attempts were recorded in 2019 and 2020.
- Displaying male black grouse were observed in three separate locations within the Development Site in 2019. There was unseen lekking recorded approximately 1 km northeast of the Development Site on 22 May 2019. There were four other records of single birds, two within and two outwith the Development Site in 2019.
- In 2020, there were eight records of black grouse, six of which were within the Development Site. Single displaying males were seen in four locations. There was also a record of two black grouse males in flight.

11.2.12

Distribution and abundance surveys were limited to monthly winter walkover surveys during the 2019/20 and 2020/21 non-breeding seasons (late September 2019 to February 2020; and late September 2020 to February 2021). Winter walkovers covered the Development Site plus a 500m buffer and included sampling both dawn and dusk. No key findings were recorded.

11.3 Scope of Assessment and Assessment Methodology

11.3.1

The ornithological impact assessment will consider the recognised Chartered Institute of Ecology and Environmental Management guidelines (CIEEM, 2018) . It will focus on assessing the potential impact of the Proposed Development on any relevant designated sites and any birds of high nature conservation value. Where necessary, mitigation and enhancement measures will be considered without which potentially significant effects could include:

- Direct habitat loss due to land take by wind turbine bases, tracks and ancillary structures;
- Disturbance and displacement of birds from the proximity of the wind turbines. Such disturbance may occur as a consequence of construction work, or due to the presence of the operational turbines close to nest sites or feeding areas or on habitual flight routes; and
- The effects of collision with rotating turbine blades (i.e. killing or injury of birds), which is of particular relevance for sites located in areas with high raptor activity or which support large concentrations of waterfowl.

11.3.2

With regards to the first issue, total land take by wind farm infrastructure generally represents a small proportion of a site. Therefore, the permanent loss of nesting and foraging habitat for birds tends to be small and will generally have little effect on bird populations. At most wind farm sites, it

is the latter two issues, collision risk and displacement, which may potentially be more significant, and these will be the focus of the assessment.

11.3.3 Based on results collected to date, golden eagle is likely to be a potential receptor, and to assess potential impacts it is proposed that:

- Analysis of data from satellite tagged adult golden eagles breeding in proximity to the Proposed Development, would be used to provide an assessment of the spatial and temporal use of land around the Proposed Development; and
- Given current uncertainties over the accuracy of modelling of range use by the Predicting Aquila Territory (PAT) model, it is proposed to use data from satellite tagged adult birds close to the Proposed Development and the recently published GET Model.

11.3.4 Habitats Regulations Appraisal (HRA) screening will be carried out to determine if the Proposed Development would have a likely significant effect on the conservation objectives of any SPA whose qualifying features may have connectivity to the Proposed Development (and to determine if an Appropriate Assessment would be required).

11.3.5 An Ornithology Chapter of the EIA Report would be produced that would summarise the findings of the desk study and the surveys which have been undertaken. These would form the baseline against which the potential impact of the Proposed Development, alone and cumulatively with other wind farm and relevant developments (at the Natural Heritage Zone scale), would be assessed, based on both species importance and the nature and magnitude of the impact as a result of the Proposed Development. Any mitigation considered necessary will be identified and residual effects with this in place will be determined.

12. Geology, Hydrology and Hydrogeology

12.1 Introduction

- 12.1.1 This Scoping chapter considers the potential effects of the Proposed Development with respect to geology, hydrology (including flood risk) and hydrogeology. The chapter should be read in conjunction with the development description provided in Chapter 2: Project Description and with respect to relevant parts of Chapter 10: Ecology, where common receptors have been considered and where there is an overlap or relationship between the assessment of effects.

12.2 Baseline Conditions

Data sources

- 12.2.1 The appraisal of existing (baseline) conditions for the purposes of this Scoping Chapter has involved the collection and interpretation of a wide range of data and information from published material, plus consultations relating to the local and wider hydrological environment with statutory bodies, principally SEPA and Argyll and Bute Council. The data collected, and other sources of information, are listed in **Table 12.1**. The hydrology assessment is also interrelated with, and uses information from, other chapters of this Scoping Report, such as **Chapter 10: Ecology**.

Table 12.1 Sources of Desk Study Information for Geology, Hydrology (Including Flood Risk) and Hydrogeology

Source	Data
Ordnance Survey (OS) 1:50,000, Landranger Sheet 55 Lochgilphead & Loch Awe OS 1:25,000, Explorer Sheet 360: Loch Awe & Inveraray OS MasterMap OS 1:10,000 Raster map	Topography and features
Centre for Ecology and Hydrology (CEH) National River Flow Archive www.ceh.ac.uk/data/nrfa/index.html CEH Flood Estimation Handbook (FEH) CD-ROM https://fehweb.ceh.ac.uk/ CEH-GEAR data (https://nrfa.ceh.ac.uk/catchment-rainfall) Rainfall data https://www.metoffice.gov.uk/	Climate
British Geological Survey (BGS) Hydrogeological Map of Scotland (1:625,000) (1988) BGS DiGMap BG 2009 (1:10,000) BGS GeoSure and EnviroSure reports BGS/Natural Environment Research Council (NERC). A GIS of Aquifer Productivity in Scotland. Explanatory Notes. Commissioned Report CR/04/047N: http://nora.nerc.ac.uk/504764/1/CR-04-047N_SEPA%20Aq%20productivity.pdf	Geology, ground conditions and hydrogeology

Source	Data
BGS Aquifer classification map layer on Scotland's Environment website https://map.environment.gov.scot/sewebmap/	
SEPA/BGS/SNIFFER. Vulnerability of Groundwater in the Uppermost Aquifer (Scotland)	
BGS Groundwater Vulnerability (Scotland) http://www.bgs.ac.uk/discoverymetadata/13603084.html	
National soil map of Scotland (Macaulay Institute for Soil Research) http://soils.environment.gov.scot/	Soils and peat
River Network Map	Hydrology and flows
CEH National River Flow Archive (NRFA) (www.ceh.ac.uk/data/nrfa/index.html)	
SEPA flood map (http://map.sepa.org.uk/floodmap/map.htm)	Flood risk
Landmark 1 in 75, 1 in 100 and 1 in 1000 year flood maps	
CEH FEH CD-ROM	
Scottish Government (SGt) The River Basin Management Plan for Scotland River Basin District 2015-2027	RBMP and water quality
SGt interactive mapping (https://map.environment.gov.scot/sewebmap/?layers=riverClass)	
SEPA interactive mapping facility for the Scotland River Basin Management Plan (RBMP) (https://www.sepa.org.uk/data-visualisation/water-environment-hub/?riverbasindistrict=Scotland)	
SEPA data request: information on river water quality	
SEPA data request: information on locations of Controlled Activities Regulations (CAR) licences, private water supplies (PWSs) from http://dwqr.scot/private-supply/pws-location-map/ and data request directly to HC	Abstractions and discharges
SGt. Drinking Water Protected Areas. https://www.gov.scot/publications/drinking-water-protected-areas-scotland-river-basin-district-maps/	
SGt Maps of the Drinking Water Protected Areas (DWPAs, Scotland): http://www.scotland.gov.uk/Topics/Environment/Water/17670/ProtectedAreasMaps2013	
https://sitelink.nature.scot/ Ecology surveys - as per Chapter 10: Ecology	Wetlands and peatlands
East Loch Awe Land Management Plan - 2017 – 2026: Forestry Commission Scotland - West Argyll Forest District https://forestryandland.gov.scot/images/corporate/design-plans/west-argyll/east-loch-awe/east-loch-awe-lmp.pdf	

Current baseline

Study Area

- 12.2.2 Both desk study and survey data for this Scoping chapter have been gathered with respect to a defined Study Area. The Study Area is focussed on the Development Site and a 2 km buffer area

immediately beyond it. Data beyond the Study Area have also been collected as appropriate, such as abstractions, discharges and conservation sites.

Current Baseline

- 12.2.3 The Development Site is drained by two main watercourses. These comprise the Abhainn a' Bhealaich that drains the central and northwest of the Development Site, flowing northwest into Loch Awe at Durran (NGR NM 9536 0773), and the Douglas Water which drains the northeast of the Development Site. The Douglas Water flows northwest and west along the Coire Dubh-ghlas within the Development Site and then south after exiting the site into Loch Fyne, at NGR NN 0718 0486, approximately 4 km southwest of Inveraray. The Abhainn a' Bhealaich has a gauging station at Braevallich (No. 89007), at NGR NM 957 075, approximately 1.5 km to the northwest of the Development Site boundary.
- 12.2.4 In addition, the watercourse Leacann Water drains the extreme south of the Development Site from Loch Leacann, flowing directly south into Loch Fyne, at Furnace (NGR NN 0252 0003). A tributary of the Leacann Water, called Abhainn Dubhan, drains an area to the west of the main river. The tributary's catchment overlaps a southern spur to the Development Site aligned with the minor road from Auchindrain (NGR NN 0290 0317). Also, the River Add runs along the southwestern border of the Development Site, flowing south and southwest from Loch nan Losgann (NGR NM 9546 0316) and at Loch Sidheannach (NGR NM 9669 0276).
- 12.2.5 In the elevated plateau areas on the Development Site there are numerous lochs and lochans, some found at the headwaters of the watercourses mentioned above. Larger examples of these bodies of water include the Locham Gaineamhach (NGR NM 9980 0450) and Loch nam Breac Buidhe (NGR NM 9891 0412) at the headwaters of the Abhainn a' Bhealaich, and Loch nan Seileach (NGR NN 0116 0512) and Loch Dubh-gh'las (NGR NN 0061 0551) at the headwaters of the Douglas Water. The lochans are characterised by a general shape that follows the underlying northeast/ southwest axis of the landform.
- 12.2.6 Within the Development Site there is a high to moderate risk from surface water (pluvial) flooding and along the areas of the tributaries in the area. Surface flooding on SEPA mapping is shown as being likely to occur in small areas across much of the Development Site.
- 12.2.7 The Water Framework Directive (WFD) water bodies identified within the Study Area and their SEPA classification of overall status are shown within **Table 12.2**.

Table 12.2 Water Framework Directive Water Bodies within the Study Area

Waterbody Name	Type	ID	Catchment	Classification (2018)	Cause
Abhainn a' Bhealaich	Watercourse	10272	River Awe	Moderate ecological potential	Hydro-electric power (HEP); riparian vegetation & forestry
Douglas Water	Watercourse	10226	Loch Fyne Coastal	Poor	HEP; riparian vegetation & forestry
Leacann Water	Watercourse	10227	Loch Fyne Coastal	Moderate	Riparian vegetation & forestry
River Add (u/s Abhainn Bheag an Tunns confluence)	Watercourse	10268	River Add	Poor ecological potential	HEP; riparian vegetation & forestry
Loch Awe	Loch	100585	N/A	Moderate ecological potential (heavily modified)	

- 12.2.8 The installation of HEP schemes has had a significant impact on the water quality status. Hydro penstocks are located adjacent to the Abhainn a Bhealaich and associated tributaries as well as adjacent to the Douglas Water.
- 12.2.9 Water quality is an important consideration for fish hatcheries/ farms at this locality. The Argyll Fisheries Trust (AFT) has a fishery management plan in place for the Allt a Chroisg burn (NGR NM 9583 0815). The plan allows for the control of silt management and enhancing the riparian vegetation in line with UK Forestry Standard (UKFS).
- 12.2.10 A drinking water protected area is located to the northeast of the Development Site, within the Allt Riabhachan catchment. Loch Righeachan (NGR NN 0609 0818) and the surrounding catchment is the public water supply for Inveraray. There are two areas described as new small lochs with IDs DWPA13_354 and DWPA13_351.
- 12.2.11 The underlying bedrock geology is typically aligned northeast to southwest, and this alignment is reflected in the landscape of alternate ridges and dips. The bedrock geology across the Development Site is complex and mainly comprises Neoproterozoic igneous and metamorphic rocks. In the southern half of the Development Site are the Ardrishaig Phyllite Formation of calcareous semipelite and occasional metalimestones. In the northern part of the Development Site is the Crinian Grit Formation of quartzite rocks. Outcrops of the Dalradian Supergroup are found across the Development Site, becoming more frequent toward the north. In addition, the whole area is cut by the Mull dyke swarm of basalt and microgabbro northwest to southeast trending intrusions, and the Siluro-Devonian calc-alkaline felsite minor intrusion suite is also found forming a more massive continuous intrusion across the centre of the Development Site.
- 12.2.12 Exploration for base metals in the pillow lavas and sills of the Dalradian Tayvallich volcanics in the Loch Fyne area led to the development of copper/ nickel mines at Caignure. The Caignure Mine site at NGR NM 995 011 is located approximately 1 km south of the Development Site. This area has been designated as a Site of Special Scientific Interest (SSSI). Mining waste dumps in the forest

south of the road are small but extensive, and small areas of high grade ore can be located, consisting of rapidly oxidising pyrrhotite and pentlandite with minor chalcopyrite.

- 12.2.13 Although there are no other nature conservation sites within the Study Area, there are ancient woodlands associated with the lower reaches of the main watercourses and along Loch Awe and Loch Fyne. Two areas of ancient woodland of note are Barmore Wood (NGR NN 053 051), 500 metres to the east of the Development Site and along the bank of the Douglas Water, and Coille Mhinnean plantation (NGR NR 996 988), 2 km to the south of the Development Site.
- 12.2.14 The superficial deposits within the Development Site are patchy. Alluvium and glaciofluvial deposits (silt, sand and gravel) are found within the lower reaches of watercourses in the area, i.e. along the Abhainn a' Bhealaich to the north of the Development Site, and in some upper reach areas along the Douglas Water in the east of the site. Lower slopes of the hills and higher elevation plateau areas within the Development Site comprise Devensian diamicton till and hummocky sand and gravel diamicton glacial superficial deposits.
- 12.2.15 Peat deposits are found along the upper reaches of the Abhainn a' Bhealaich and around its associated head waters at Loch Sidheannach in the southwest of the Development Site. The Brenchoillie Peat Restoration Areas (PRAs) are located southwest of Loch Leacann, just inside the Development Site boundary. In addition, areas of slope less than three degrees have been identified within the East Loch Awe Land Management Plan (LMP) and are indicative areas for deeper peat presence on upper slopes. In other areas of the Development Site superficial deposits are thin or absent.
- 12.2.16 Soils are dominated by peaty podzols within areas of superficial deposits and plateau areas and peaty gleys where superficial deposits are thin or absent. These soils are usually associated with a high to moderate soil runoff risk. The sequence of alternate ridges and dips creates alternate areas of thin soils and peaty rankers grading through deeper pits with lochans in the hollows.
- 12.2.17 The bedrock beneath the Development Site is classed as a Class 2C, a low productive aquifer where flow is virtually all through fractures and other discontinuities. As a result, the bedrock can locally yield only small amounts of groundwater in the near-surface weathered zone and secondary fractures. Borehole yields are typically low, with an overall mean of up to 2 litres per second (l/s) and rarely from springs. Therefore, these rocks have limited groundwater in a near-surface weathered zone and secondary fractures. Superficial deposits may also comprise a low productivity aquifer within lower elevations and valley bottoms. The Oban and Kintyre WFD bedrock groundwater body is classified as having a Good overall status.
- 12.2.18 Tributaries on the upper reaches of the watercourses within the Development Site could feed habitats that are otherwise regarded as Groundwater-Dependent Terrestrial Ecosystems (GWDTEs). In the most part, the presence of peat and/ or till and low permeability bedrock ensures that any groundwater levels are local and perched. Therefore, wider-scale groundwater supply to the habitats identified is limited, with the majority of the supply coming instead from surface or very near-surface infiltration and surface runoff.
- 12.2.19 Registered private water supplies (PWSs) within 2 km of the Development Site boundary are shown in **Table 12.3**.

Table 12.3 Private Water Supplies within the Study Area

Source Name	NGR*	Location Description	PWS Class	Properties
Durran	NM 960 079	Approximately 1.5 km northwest of the Development Site on the Allt a Chroisg burn.	A1	5
Braevallich Fish Farm	NM 956 079	Approximately 1.8 km northwest of the Development Site on the Abhainn a Bhealaich.	A1	1
Braevallich Farmhouse	NM 954 075	Approximately 1.8 km northwest of the Development Site likely on the Allt Cam-dhonn tributary.	N/A	1
Braevallich House	NM 951 075	Approximately 1.8 km northwest of the Development Site likely on small unnamed tributary.	N/A	1
Ardchoille Cottage	NM 953 074	Approximately 1.6 km northwest of the Development Site likely on the Allt Cam-dhonn tributary.	N/A	1
Upper Braevallich cottage	NM 959 073	Approximately 1.3 km northwest of the Development Site on the Abhainn a Bhealaich.	N/A	1
Kilbride Chalet	NN 071 052	Approximately 1.7 km east of the Development Site on the Douglas Water at Douglas Lodge.	N/A	1
Saunach Kennels	NN 062 050	Approximately 1 km east of the Development Site on a tributary to the Douglas Water.	N/A	1
South Craleckan	NN 027 009	Approximately 2 km southeast of the Development Site on a tributary to the Leacann Water.	N/A	1
Leacanne Borehole	NN 023 019	Approximately 1.6 km southeast of the Development Site, 500 metres southeast of Brenchoillie House.	N/A	1
Braleckan	NN 021 026	Approximately 1.2 km southeast of the Development Site on a tributary to the Leacann Water.	N/A	1
Brenchoille Farm	NN 012 028	Approximately 1 km southeast of the Development Site on the Leacann Water.	N/A	1
Drinliath	NS 008 995	Approximately 1.8 km south of the Development Site on the tributary Allt a' Bhocain leading to Loch Fyne.	N/A	1

*NGRs are estimated from the locations shown on mapping from <http://dwqr.scot/private-supply/pws-location-map/> but will need to be confirmed during consultation.

12.3 Scope of Assessment

Potential receptors

- 12.3.1 Receptors that could be significantly affected by the Proposed Development and that therefore need to be taken forward for further consideration are identified within the baseline description above. The only receptors considered outside this Study Area are nearby abstractions/ conservation sites, and properties/ infrastructure at risk of downstream flooding. Receptors that are likely to be significantly affected will be identified on the basis of their value/ sensitivity and the magnitude of change to which they are exposed as a result of the Proposed Development.
- 12.3.2 The principal receptors identified that would potentially be affected by the Proposed Development comprise the following:
- Lochs and lochans, watercourses and associated WFD surface water bodies (such as the Abhainn a' Bhealaich and Douglas Water watercourses and Loch Leacann);
 - Aquifers and the associated WFD groundwater body (Oban and Kintyre);
 - Downstream humans, property and infrastructure (flood risk);
 - Abstractions, springs and water resource use;
 - Water conditions supporting conservation sites (including GWDTEs); and
 - Solid geology, given that it has been recognised as a SSSI (Craignure mines).
- 12.3.3 In terms of the receptors 'scoped out' from further assessment, these include the following:
- Groundwater within the peat is not identified as an aquifer by the BGS and so is not regarded as an aquifer receptor in this assessment. However, this groundwater is still taken account of in the assessment in terms of its role in supporting the mosaic of peatlands and GWDTEs.
- 12.3.4 No other identified receptors have been 'scoped out' at this stage.

Likely significant effects

- 12.3.5 The likely significant hydrological and hydrogeological effects that will be taken forward for assessment in the EIA are summarised in **Table 12.4**.

Table 12.4 Likely Significant Geology, Hydrology and Hydrogeology Effects

Activity	Effects	Receptors
Land preparation (earthworks and excavation of the turbine foundations and borrow pits).	Ground disturbance leads to sediment loading and pollution of watercourses.	Lochs and lochans, watercourses and associated WFD surface water bodies (such as the Abhainn a' Bhealaich and Douglas Water watercourses and Loch Leacann)
	Contamination of soils, surface waters and groundwater due to accidental release of pollutants during works.	Aquifers and associated WFD groundwater body (Oban and Kintyre)
	Excavation and fill leads to disruption of surface and near-surface flow paths and changes to the drainage regime, most typically increased runoff and flood risk.	Downstream humans, property and infrastructure (flood risk)
		Abstractions, springs and water resource use

Activity	Effects	Receptors
	Dewatering interception of groundwater leading to a loss of water resource and disruption of groundwater support (baseflow) to watercourses.	Water conditions supporting conservation sites (including GWDTEs)
	Ground disturbance and destruction of geological structures.	Conservation sites such as the SSSI (Craignure mines)
Soil compaction and temporary hardstanding.	Contamination of soils, surface waters and groundwater due to accidental release of pollutants during works.	Lochs and lochans, watercourses and associated WFD surface water bodies (such as the Abhainn a' Bhealaich and Douglas Water watercourses and Loch Leacann)
	Reduced infiltration capacity results in increased runoff and flood risk, and reduced recharge to groundwater, leading to loss of water resource and disruption of baseflow to watercourses.	Aquifers and associated WFD groundwater body (Oban and Kintyre)
	Ground disturbance and destruction of geological structures.	Downstream humans, property and infrastructure (flood risk)
		Abstractions, springs and water resource use
		Water conditions supporting conservation sites (including GWDTEs)
		Conservation sites such as the SSSI (Craignure mines)
Land clearance and deforestation.	Land clearance and ground disturbance leads to sediment loading and pollution of watercourses.	Lochs and lochans, watercourses and associated WFD surface water bodies (such as the Abhainn a' Bhealaich and Douglas Water watercourses and Loch Leacann)
	Contamination of soils, surface waters and groundwater due to accidental release of pollutants during works.	Aquifers and associated WFD groundwater body (Oban and Kintyre)
	Land clearance leads to disruption of surface and near-surface flow paths and changes to the drainage regime, most typically increased runoff and flood risk.	Downstream humans, property and infrastructure (flood risk)
	Land clearance leads to breakdown of peat structure and disturbance of peat hydrology.	Abstractions, springs and water resource use
		Water conditions supporting conservation sites (including GWDTEs)
Peat working.	Ground disturbance leads to sediment loading and pollution of watercourses.	Lochs and lochans, watercourses and associated WFD surface water bodies (such as the Abhainn a' Bhealaich and Douglas Water watercourses and Loch Leacann)
	Contamination of soils, surface waters and groundwater due to accidental release of pollutants during works.	Aquifers and associated WFD groundwater body (Oban and Kintyre)
	Peat disturbance leads to disruption of surface and near-surface flow paths and changes to the drainage regime, most typically increased runoff and flood risk.	Downstream humans, property and infrastructure (flood risk)
	Peat disturbance leads to breakdown of peat structure and disturbance of peat hydrology.	Abstractions, springs and water resource use

Activity	Effects	Receptors
		Water conditions supporting conservation sites (including GWDTEs)
Material stockpiling/removal (quarrying).	Ground disturbance leads to sediment loading and pollution of watercourses. Contamination of soils, surface waters and groundwater due to accidental release of pollutants during works. Excavation and fill leads to disruption of surface and near-surface flow paths and changes to the drainage regime, most typically increased runoff and flood risk. Dewatering interception of groundwater leading to a loss of water resource and disruption of groundwater support (baseflow) to watercourses. Ground disturbance and destruction of geological structures.	Lochs and lochans, watercourses and associated WFD surface water bodies (such as the Abhainn a' Bhealaich and Douglas Water watercourses and Loch Leacann) Aquifers and associated WFD groundwater body (Oban and Kintyre) Downstream humans, property and infrastructure (flood risk) Abstractions, springs and water resource use Water conditions supporting conservation sites (including GWDTEs) Conservation sites such as the SSSI (Craignure mines)
Watercourse crossings.	Bank and bed disturbance leads to sediment loading, changes in morphology and pollution of watercourses. Contamination of watercourses due to accidental release of pollutants during works.	Lochs and lochans, watercourses and associated WFD surface water bodies (such as the Abhainn a' Bhealaich and Douglas Water watercourses and Loch Leacann) Abstractions, springs and water resource use
Track and crane pad placement.	Ground disturbance leads to sediment loading and pollution of watercourses. Contamination of soils, surface waters and groundwater due to accidental release of pollutants during works. Track and crane pad placement leads to disruption of surface and near-surface flow paths and changes to the drainage regime, most typically increased runoff and flood risk. Ground disturbance and destruction of geological structures.	Lochs and lochans, watercourses and associated WFD surface water bodies (such as the Abhainn a' Bhealaich and Douglas Water watercourses and Loch Leacann) Aquifers and associated WFD groundwater body (Oban and Kintyre) Downstream humans, property and infrastructure (flood risk) Abstractions, springs and water resource use Water conditions supporting conservation sites (including GWDTEs) Conservation sites such as the SSSI (Craignure mines)
Control building and potential substation placement.	Ground disturbance leads to sediment loading and pollution of watercourses. Contamination of soils, surface waters and groundwater due to accidental release of pollutants during works. Control building and potential substation placement leads to disruption of surface and near-	Lochs and lochans, watercourses and associated WFD surface water bodies (such as the Abhainn a' Bhealaich and Douglas Water watercourses and Loch Leacann) Aquifers and associated WFD groundwater body (Oban and Kintyre)

Activity	Effects	Receptors
	surface flow paths and changes to the drainage regime, most typically increased runoff and flood risk. Ground disturbance and destruction of geological structures.	Downstream humans, property and infrastructure (flood risk) Abstractions, springs and water resource use Water conditions supporting conservation sites (including GWDTEs) Conservation sites such as the SSSI (Craignure mines)
Operational facilities and activities.	Exposed ground leads to continued sediment loading and pollution of watercourses. Contamination of soils, surface waters and groundwater due to accidental release of pollutants during maintenance activities. Contamination of soils, surface waters and groundwater due to control building and substation chemical leaks and concrete leaching. Continuation of flow disruption, reduced infiltration capacity and peat disruption effects.	Lochs and lochans, watercourses and associated WFD surface water bodies (such as the Abhainn a' Bhealach and Douglas Water watercourses and Loch Leacann) Aquifers and associated WFD groundwater body (Oban and Kintyre) Downstream humans, property and infrastructure (flood risk) Abstractions, springs and water resource use Water conditions supporting conservation sites (including GWDTEs)

Note: For each activity an effect will often impact many different types of receptors. Effects and receptors have only been listed above due to the large number possible linkages involved.

- 12.3.6 The main potential hydrological/ hydrogeological impacts associated with the Proposed Development relate to the construction phase, in particular from tracks and watercourse crossings. The EIA will identify the location and the nature of the impact from these construction and upgrading activities, in particular the potential for the generation of silt-laden runoff. It will then prescribe measures to be adopted during construction to mitigate against negative impacts on the water environment.
- 12.3.7 Other activities of relevance include the construction of wind turbine foundations and crane pads, the control building and potential substation. The impacts from these activities, such as the leaching of concrete residues to the water environment and changes in the runoff/recharge characteristics, will also be addressed in the EIA. Again, mitigation measures will be outlined that would reduce negative impacts.
- 12.3.8 The possibility for borrow pits and stockpiling will be explored, and should the Development Site be suitable the impacts these would have on the water environment will also be assessed. Appropriate mitigation measures will be prescribed to reduce any negative impacts on the water environment from borrow pits.
- 12.3.9 During construction works there is the potential to destroy geological conservation sites of significant importance. These areas will need to be identified, and marked mitigation put in place to protect them.
- 12.3.10 Impacts during decommissioning are likely to be similar to those during the construction phase, but would depend on the exact nature of the decommissioning activities that take place. However,

it is likely that the ground disturbance would be much less. Mitigation similar to that implemented during the construction and operational phases (updated to reflect changes in legislation/guidance) would also help ensure that the significance of such impacts is minimised, and it is therefore proposed that consideration of decommissioning effects is 'scoped out' of the EIA.

12.4 Assessment Methodology

- 12.4.1 The generic project-wide approach to the assessment methodology is set out in **Chapter 3: EIA Process and Consultation**. This section describes how this methodology will be applied, and adapted as appropriate, to address the specific needs of the hydrology (including flood risk) and hydrogeology assessment.
- 12.4.2 The EIA Report chapter will summarise the findings of the desk study and consultation, these together forming the baseline against which the potential impact of the Proposed Development, alone and cumulatively with other wind farm developments will be assessed.
- 12.4.3 The significance of the effects resulting from the Proposed Development is primarily determined by the value of a given water feature and the magnitude of change. In terms of the hydrology and hydrogeology, the key types of effects relate to water quantity (level and flow) and quality. However, depending on the effects on surface water flows, there may also be effects on immediate and downstream morphology and sediment dynamics and flood risk.
- 12.4.4 Therefore, the assessment will be based on both receptor importance and the nature and magnitude of the impact as a result of the Proposed Development. All mitigation considered necessary will be identified and residual effects with this mitigation in place will be determined. It is intended that no residual significant effects will remain following adoption of the proposed mitigation, but whether this is achievable will be investigated within the EIA Report.

13. Traffic and Transport

13.1 Introduction

- 13.1.1 With reference to applicable policies, guidance and strategies, the Traffic and Transport chapter of the EIA Report will assess the impact of the various different stages of the Proposed Development on the existing road network in the area.
- 13.1.2 As set out in **Section 1.5** due to recent technological advancements the Applicant has revised the maximum tip height, to account for up to 230m hence the submission of a revised version of the scoping report. To allow for the construction of turbines with a maximum tip height of 230m large blade components would be required to be transported on the highways network.
- 13.1.3 Based on currently evolving turbine technologies and Abnormal Load Conveyance methods Wood considers that there are two options available to mitigate against the potential impacts of transportation of a larger blade to the Eredine site. The first option is the selection of a Wind Turbine Generator which has a blade constructed from "split blade" technology. The Second option is the transportation of the blade component to site using a blade lifter vehicle arrangement.
- 13.1.4 "Split blade" technology is where the blade component is split into two sections for transportation to site, the GE Cypress platform is an example of such technology. The use of this technology would reduce the impact of abnormal load deliveries to site by transporting blades via a more manageable vehicle size and arrangement and can allow for larger blades to be used in locations previously inaccessible.
- 13.1.5 The blade lifter vehicle arrangement is comprised of a haulage vehicle pulling a set of axels on which a blade lifter adapter is fitted, the blade lifter adapter carries the blade component and can lift the blades position vertically to negotiate more constrained sections of road, though this does present challenges to overhead line infrastructure.
- 13.1.6 The use of the split blade technology and the blade lifter vehicle arrangements will be discussed during the abnormal load assessment stage and will provide a potential option to transport larger blades to site for the revised maximum tip height.
- 13.1.7 The study area for the EIA will include all transport routes associated with the Proposed Development and will consider the impact of the construction phase, operational phase and decommissioning phases on the transport haulage routes.

13.2 Scoping Opinion

- 13.2.1 An initial scoping report for the Eredine Wind Farm was submitted in 2020 and this scoping report included for Wind Turbine Generators to be constructed to a blade tip height of 180m. Scoping opinion on Traffic and Transport matters was provided by Transport Scotland (TS) and Argyll and Bute Council.

Transport Scotland

- 13.2.2 Transport Scotland (TS) were satisfied with the approach to EIA assessment using the Guidelines for the Environmental Assessment of Road Traffic (Institute for Environmental Assessment, 1993). TS stated that scoping the operational phase of the development out of the assessment was acceptable. TS requested that a full Abnormal Load Assessment report is provided within the EIA report and this should include swept path analysis to identify any impacts on street furniture and

road structures, in particular it should be demonstrated that the swing bridge at Ardrishaig can be overcome. It is proposed that the EIA will be supported with detailed AIL assessment to address these comments.

Argyll and Bute Council

- 13.2.3 Argyll and Bute Council noted the approach to EIA. The Area roads engineer had no objection subject to the condition that access to the site is taken from the A83 Tarbet to Campbeltown Trunk Road.

13.3 Baseline Conditions

Data sources

- 13.3.1 The sources of information that will be used for the Traffic and Transport assessment are listed below in **Table 13.1**.

Table 13.1 Sources of information used for the Traffic and Transport assessment

Source	Data
Google Earth/Google Maps	Online mapping
Crashmap	Personal Injury Accidents (PIAs)
Department for Transport	Traffic Counts (AADT)

Current Baseline

- 13.3.1 It is anticipated that the Abnormal Indivisible Loads (AIL) [transporting turbine equipment] will travel by road from the Port of Campbeltown, which is the closest port in the region capable of handling wind turbine equipment. The Port of Campbeltown has been frequently used for the delivery of wind turbine components in this region, for example being the selected port of entry for An Suidhe, A'Cruach and Carraig Gheal wind farms, both of which are situated near to the Proposed Development.
- 13.3.2 The proposed access from the Port of Campbeltown to the Proposed Development access is illustrated in **Figure 13.1** in **Appendix A**. Access routes for other developments such as A'Cruach and An Suidhe wind farms, share, in part, the same access route.
- 13.3.3 The sections of the road network included within the assessment will be determined on the basis of the potential effect of increased traffic associated with the Proposed Development on identified sensitive receptors.

13.4 Scope of Assessment

- 13.4.1 The majority of traffic will be generated during the construction phase, with relatively little traffic generation anticipated during operation.
- 13.4.2 Once the Proposed Development is operational, it is envisaged that the amount of traffic associated with the scheme would be minimal. Occasional visits may be made to the site for maintenance checks. The vehicles used for these visits are likely to be a 4x4 or similar and there may be an occasional need for an HGV to access the site for maintenance and repairs.

- 13.4.3 It is considered that the effects of operational traffic would be negligible and therefore it is proposed that the assessment of the operational phase of the Proposed Development is 'scoped out' of the EIA.
- 13.4.4 On the assumption that below ground infrastructure and access tracks will remain in situ, less traffic will be generated during decommissioning than during construction. The traffic baseline may be different to the current baseline traffic conditions when decommissioning is undertaken after the 35 year operational phase.
- 13.4.5 The effects on the road network are likely to be similar in nature though of lower magnitude than that relating to the construction phase as less vehicle movements would be required.
- 13.4.6 It is considered that the effects of decommissioning traffic would be lower in magnitude than the construction phase as less vehicle movements are required; therefore, it is proposed that the assessment of the decommissioning phase of the Proposed Development is 'scoped out' of the EIA.
- 13.4.7 The main transportation impacts will be associated with the movements of commercial heavy goods vehicles (HGVs) travelling to and from the site during the construction phase of the Proposed Development and this will be considered in the EIA Report.

Potential Receptors

- 13.4.8 The traffic impact study area is likely to be defined as comprising the following sections of the road network:
- A83; and
 - A816.
- 13.4.9 These highways provide comprehensive coverage of the routes surrounding the Site. Beyond these roads, traffic from the Proposed Development would access the wider road network where its effect would be diluted by existing traffic on these routes or would distribute to a point where the effects from traffic would be minimal.
- 13.4.10 The receptors along the highways identified above have been identified as forming the scope of the assessment in relation to potentially traffic-related effects. Receptors are the users or beneficiaries of highway network assets and facilities such as pedestrians, cyclists, equestrians and drivers who travel within the vicinity of the Proposed Development.
- 13.4.11 The assessment will be based on Guidelines for the Environmental Assessment of Road Traffic (GEART) (IEA, 1993) which identifies the following groups and special interest groups that may be affected:
- People at home;
 - People at work;
 - Sensitive groups including children, elderly and disabled;
 - Sensitive locations such as hospitals, churches, schools and historical buildings;
 - Pedestrians;
 - Cyclists;
 - Open spaces, recreational areas and shopping areas;
 - Sites of ecological and nature conservation value; and

- Sites of tourist/visitor attractions.

Likely Significant Effects

- 13.4.12 The potential effects of the Proposed Development that are likely to be significant with regards to Traffic and Transport, and those which will be subject to further assessment are set out below.
- Severance: the separation of people from places and other people and places or impede pedestrian access to essential facilities;
 - Driver delay: traffic delays to non-development traffic;
 - Pedestrian amenity: the effect on the relative pleasantness of a pedestrian journey as a result of changes in traffic flow, traffic composition and pavement width / separation from traffic;
 - Pedestrian delay: the ability of people to crossroads as a result of changes in traffic volume, composition and speed, the level of pedestrian activity, visibility and general physical conditions of the Proposed Development;
 - Fear and intimidation: these may be experienced by people as a result of an increase in traffic volume and its proximity or the lack of protection caused by such factors as narrow pavement widths; and
 - Accidents and safety: the risk of accidents occurring where the Proposed Development is expected to produce a change in the character of traffic.

13.5 Assessment Methodology

- 13.5.1 The guidance that is followed when assessing the potential significance of road traffic effects is summarised in GEART which states that:

"The detailed assessment of impacts is...likely to concentrate on the period during which the absolute level of an impact is at its peak, as well as the hour at which the greatest level of change is likely to occur." (Paragraph 3.10).

- 13.5.2 To assess the impact at its peak, the likely percentage increase in traffic is determined by comparing estimates of traffic generated by the Proposed Development with future predicted baseline traffic flows on the roads used by construction traffic in vicinity of the Site.

Determination of Significance

- 13.5.3 The EIA Regulations recognise that developments will affect different environmental elements to differing degrees, and that not all of these are of sufficient concern to warrant detailed investigation or assessment through the EIA process. The EIA Regulations identify those environmental resources that warrant investigation as those that are *"likely to be significantly affected by the development"*.
- 13.5.4 The EIA Regulations do not define significance and it will be necessary to state how this will be defined for the EIA. The significance of an effect resulting from a development during construction or operation is most commonly assessed by reference to the sensitivity (or value) of a receptor and the magnitude of the effect. This approach provides a mechanism for identifying areas where mitigation measures may be required and to identify the most appropriate measures to alleviate the risk presented by the development.
- 13.5.5 GEART provides two rules that are used to establish whether an environmental assessment of traffic effects should be carried out on receptors:

- Rule 1: Include highway links where traffic flows are predicted to increase by more than 30% (or where the number of HGVs is predicted to increase by more than 30%); and
- Rule 2: Include sensitive areas where traffic flows are predicted to increase by 10% or more.

- 13.5.6 It should be noted that, according to GEART, predicted traffic flow increases below 10% are generally not considered to be significant as daily variations in background traffic flow may fluctuate by this amount. Changes in traffic flows below this level are, therefore, assumed not to result in significant environmental effects and would therefore not be assessed in the EIA.
- 13.5.7 The main transportation impacts associated with a wind farm relate to the construction phase of the development. This would include the movement of HGV traffic travelling to and from a site bringing in material for the construction of the access, tracks, foundations, crane hard standing etc. The assessment will identify the number of HGV movements required for the Proposed Development.
- 13.5.8 Other construction impacts relate to the delivery of the turbine components. These components, by their nature are large and require abnormal load delivery. The assessment will identify the number of abnormal loads required for the Proposed Development.
- 13.5.9 The assessment will include the identification of the baseline data through relevant survey information for all the roads associated with the different elements of the Proposed Development. The assessment will identify the:
- Existing traffic flows;
 - Potential impacts (of changes in traffic flows) on local roads;
 - Potential impacts (of changes in traffic flows) on users of those roads; and
 - Potential impacts (of changes in traffic flows) on land uses and environmental resources and sensitive receptors fronting those roads, including the relevant occupiers and users.
- 13.5.10 The sensitivity of each highway link included in the assessment will be assigned a sensitivity in accordance with GEART. This is based on the proximity of sensitive receptors to the highway link and the highway environment. Sensitivity judged as High or Medium results in Rule 2 (sensitive areas where traffic flows are predicted to increase by 10% or more) being considered. Sensitivity judged as Low or Negligible results in Rule 1 being considered (where traffic flows are predicted to increase by more than 30% (or where the number of HGVs is predicted to increase by more than 30%)).
- 13.5.11 The classification of a likely traffic and transport effect will then be derived by considering the sensitivity of the receptor against the magnitude of change, with the details of the assessment presented in the EIA Report.
- 13.5.12 Consideration would be given as to whether any of the receptors which would be taken forward for assessment are likely to be subject to cumulative effects because of the Traffic and Transport effects generated by other proposed developments, and if this is likely to be the case a cumulative assessment would be undertaken.

14. Socio-economics

14.1 Introduction

- 14.1.1 Wind farms have the potential to have both beneficial and negative effects on socio-economics, tourism and recreation. Scottish Planning Policy in regard to wind farm development sets out a number of assessment criteria. These include consideration of effects on the local and national economy and tourism and recreation interests, in addition to benefits and disbenefits for communities. Relevant development plan policies will be taken into account.

14.2 Baseline Conditions

- 14.2.1 The Proposed Development Site is located within Argyll and Bute. A brief overview of the socio-economic baseline for the area surrounding the Proposed Development Site is set out below.

Employment and Economy

- 14.2.2 NOMIS statistics⁵¹ show that 76% of the population of Argyll and Bute is economically active, the same as the figure for Scotland but lower than for Great Britain (78%), and that.
- 14.2.3 11,300 people (24% of the population) are economically inactive, which again is the same as for Scotland but is higher than the equivalent figure for Great Britain.
- 14.2.4 Professional occupations are the dominant employment occupation, followed by skilled trades and elementary occupations. There is no dominant industry for employment with accommodation and food service activities; wholesale and retail trade, repair of motor vehicles and motorcycles, public administration, and defence/compulsory social security; and human health and social work activities all accounting for around 12-13% each. The two sectors of manufacturing and construction are also important sources of employment, employing a combined 3,750 people (11%).

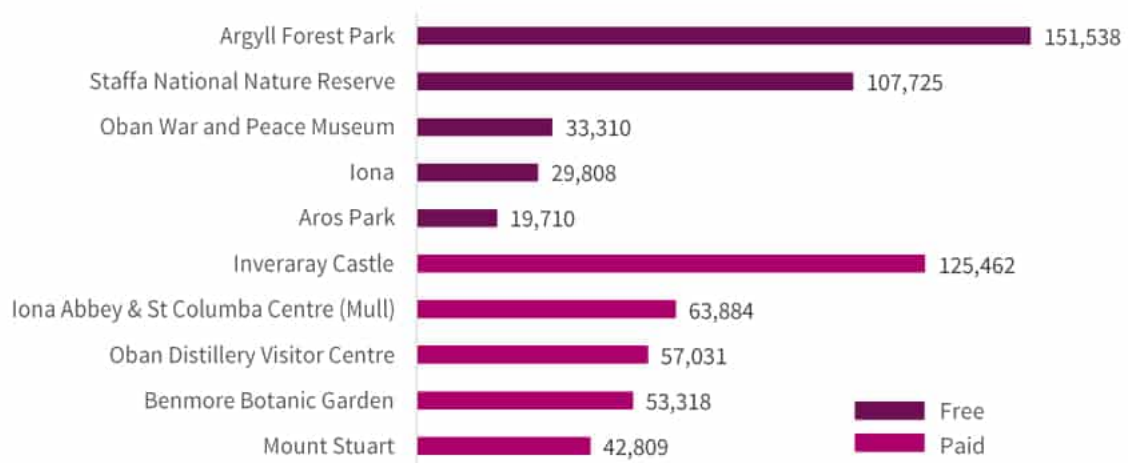
Tourism and Recreation

- 14.2.5 Tourism is an extremely important sector for Argyll and Bute employing around 5,700 people and having a Gross Value Added (GVA) of over £114 m in 2018
- 14.2.6 **Table 14.1**⁵² below shows the top five free and paid visitor attractions in Argyll and Bute in 2019, with the most popular free attraction being Argyll Forest Park and the most popular paid attraction being Inveraray Castle.

⁵¹ Various NOMIS statistics. Available at: <https://www.nomisweb.co.uk/reports/lmp/la/1946157408/report.aspx> (Accessed 04/05/2022)

⁵² Insight Department: Argyll and the Isles Factsheet 2019, Visit Scotland, January 2021. Accessed at: [Argyll and the Isles Factsheet 2019 \(visitscotland.org\)](https://www.visitscotland.org/factsheet/2019) 04/05/2022

Table 14.1 Top Five Free and Paid Visitor Attractions in Argyll and Bute in 2019.

Top Five Free and Paid Visitor Attractions in Argyll & the Isles (with Visitor Numbers), 2019

14.2.7 The Leacainn Muir Forest Drive runs through the Proposed Development Site. This Forestry and Land Scotland promoted tourist route includes picnic spots and viewpoints with clear views across Loch Awe towards Ben Cruachan and would be a key consideration for the tourism and recreation assessment.

14.2.8 Argyll and Bute is popular for a number of recreational pursuits including water sports, walking, cycling, horse-riding and watching wildlife. Loch Awe to the west of the Proposed Development Site is popular for kayaking and fishing. There are no known recreational pursuits undertaken directly on the Proposed Development Site.

Land Use

14.2.9 The Proposed Development Site is located within Eredine Forest so is used for commercial forestry purposes. Whilst there are no known formal recreational pursuits undertaken on site, public access is encouraged primarily on foot but also by bicycle and on horseback.

14.3 Scope of Assessment

14.3.1 In order to assess the potential socio-economic effects of the Proposed Development, it is necessary to gain a view as to the current position of the local economy. The character of the local economy will therefore be examined as part of the EIA to provide an overview of potential linkages with the Proposed Development.

14.3.2 The assessment will examine the level of construction activity and job creation and the potential linkages with the wider local economy. This will include an assessment of potential multiplier effects within the local economy.

14.3.3 Tourist and recreational attractions along with any core paths or public rights of way (PRoW) within or surrounding the Development Site identified within the LVIA will form part of the assessment. Ways in which benefits such as improved public and recreational access to the Development Site could be delivered will be examined.

14.4 Assessment Methodology

14.4.1

There is no prescribed approach to a socio-economic assessment within an EIA, so the methodology will follow the general approach of the EIA by assigning a sensitivity or importance to the factors being considered, and then identifying a magnitude of change as a result of the proposed development. For many of the socio-economic issues to be included, the magnitude of change will be assessed using professional judgement under a comparison approach (e.g. looking at the number of jobs to be created in comparison to the number of jobs in the study area).

15. Infrastructure and Other Issues

15.1 Introduction

- 15.1.1 Specific Advice Sheet Onshore Wind Turbines (Scottish Government, May 2014) identifies that wind turbines might impact on infrastructure, telecommunications, utilities and air safeguarding issues. Effects may, for example, include disruption of microwave rebroadcast links or local radio communication systems. The quality of television reception may also be affected, though to a lesser extent than prior to the switchover to digital transmissions, and viewers may suffer reduction of picture quality and acoustic interference.

15.2 Existing Infrastructure, Telecommunications and Broadcast Services

- 15.2.1 A range of investigations would be undertaken to establish the presence of existing infrastructure associated with utilities such as water, gas, electricity and telecommunications links to establish either the absence of effects or to identify appropriate mitigation to overcome any effects. These matters would be addressed through consultation with the relevant system operators.

15.3 Aviation

- 15.3.1 Wind turbines within radar Line of Sight (LoS), and therefore detectable by radar systems, reflect radio waves that can interfere with the system. Turbine induced radar clutter appearing on radar displays can affect the safe provision of Air Traffic Services as it can mask unidentified aircraft from the air traffic controller and/or prevent the accurate continued identification of aircraft under control. In some cases, radar reflections from the turbines can affect the performance of the radar system itself. Additionally, due to their height, wind turbines could also potentially present a collision risk to low flying aircraft, therefore affecting military low-level training flights.
- 15.3.2 Consultations will be undertaken with aviation stakeholders to identify if the Proposed Development is likely to cause any problems in relation to their operations. If any problems are identified, negotiations would be undertaken to seek and agree appropriate mitigation.

15.4 Population and Human Health

- 15.4.1 The potential effects on population and human health arising from the Proposed Development would be considered in the context of the other factors identified in Schedule 4(4) of the 2017 EIA Regulations given that any environmentally related health issues (both beneficial and adverse) are likely to result from, for example, exposure to traffic, changes in living conditions resulting from noise, and increased employment opportunities. It is therefore proposed that population and human health effects of the Proposed Development are incorporated within the relevant technical chapters of the EIA Report (i.e. Socio-economics, Traffic and Transport, Noise, and Landscape and Visual (in respect of residential amenity in particular)).
- 15.4.2 However, to clearly demonstrate that population and human health effects are included in the EIA Report, and to assist with ease of reference, it is proposed that a summary table that identifies the potential effects and the EIA Report chapter that considers the matter in more detail would be included within the 'Other Issues' chapter).

15.5 Climate

- 15.5.1 The vulnerability of the Proposed Development to climate change and extreme climate events will be considered within the engineering design and it is not proposed that a separate EIA Report chapter on 'Climate' is prepared. A Peat Slide Risk Assessment and Peat Management Plan will be produced as part of the EIA.
- 15.5.2 A carbon balance calculator would be completed using the most recent version available on the Scottish Government website and this would be reported in the Renewable Energy Policy, Carbon Balance and Peat Management EIA Report chapter.
- 15.5.3 Given the non-emitting nature of a wind farm and the fact that it is a renewable technology, it is not proposed to undertake an additional greenhouse gas (GHG) assessment, but any effects on climate would be considered in relevant technical assessments.

15.6 Sustainable Resource Use

- 15.6.1 Although application sites for wind turbine development can encompass large areas of land, the actual built development covers a relatively small area and, in most circumstances, farming/forestry and other land-based activities would continue in and around turbine development. As a result of this, the Proposed Development would only result in a small land take, which is unlikely to result in significant environmental effects in terms of land use.
- 15.6.2 In terms of soil and peat, the design of tracks, turbine foundations, hardstanding, borrow pits etc. would minimise the amount of soil disturbance. Where soils and peat would be excavated, they would be stored on the Development Site in accordance with the Peat Management Plan appended to the EIA Report and the Construction and Environmental Management Plan (CEMP) which would be produced to discharge a planning condition prior to construction, and then used in the restoration of the site post construction to minimise the loss of soil and peat resource.
- 15.6.3 With regards water, the key environmental effects of this natural resource would be its use during the construction, operational and decommissioning phases, the potential increase in flood risk and the disturbance of surface and groundwater as a result of construction activities. With regards to construction works, the water resource would be managed in accordance with the CEMP. With regards to surface water and groundwater, potential effects would be addressed in the Geology, Hydrology and Hydrogeology chapter of the EIA Report, with appropriate mitigation measures outlined where required.
- 15.6.4 The potential effects of the Proposed Development on biodiversity would be addressed within the Ecology and Ornithology chapters of the EIA Report, within which appropriate mitigation would be set out in order to minimise the potential damage to habitats and species during the construction, operation and decommissioning. Mitigation measures would also be detailed in a Habitat Management Plan, which it is expected would be required by planning condition, and also within the CEMP.
- 15.6.5 As a result, it is not proposed that Sustainable Resource Use is considered as a discrete section of the EIA Report for the Proposed Development.

15.7 Major Accidents and Disasters

- 15.7.1 The scope for the EIA to consider major accidents and disasters has been initially considered in **Table 15.1** below. Major accidents or disasters have been scoped in where they represent a high risk to the Proposed Development, either from the proposed location or from the project itself. A high risk is considered to be where there is reasonable likelihood of the accident or disaster occurring, or where the effect of the accident or disaster would lead to the requirement for mitigation which is beyond the usual scope of construction or operational activities. Where an accident or disaster has been scoped in, the EIA Report chapter(s) identified would consider the matter in more detail. This further detail may show that no further assessment is needed, or it may lead onto an appropriate level of assessment and/or identification of appropriate mitigation.

Table 15.1 Major Accidents and Disasters

Major Accident or Disaster	Risk due to location	Risk due to project	Scoped in/out due to risk	Rationale	EIA Report Chapter
Biological hazards: epidemics	Low	Very low	Out	The probability of epidemics which would affect the construction or operation of the Proposed Development is considered to be Low. If necessary government guidance in relation to social distancing would be followed to enable safe construction and operation of the Consented Development.	N/A
Biological hazards: animal and insect infestation	Very low	Very low	Out	The probability of animal and insect infestations which would affect the construction or operation of the Proposed Development is considered to be very low.	N/A
Earthquakes	No	No	Out	Any earthquakes in the vicinity of the Proposed Development would be of a very small magnitude and the design of turbine foundations etc. is adequate to withstand such low magnitude events.	N/A
Tsunamis / tidal waves / storm surges	No	No	Out	The general location of the Proposed Development and its distance from the coast means there is no risk of these phenomena affecting the Proposed Development.	N/A

Major Accident or Disaster	Risk due to location	Risk due to project	Scoped in/out due to risk	Rationale	EIA Report Chapter
Volcanic eruptions	No	No	Out	There are no active volcanos in the vicinity of the Proposed Development.	N/A
Famine / food insecurity	Negligible	Very low	Out	The probability of famine / food insecurity which would affect the construction or operation of the Proposed Development is considered to be Negligible.	N/A
Displaced populations	Negligible	Very low	Out	The probability of displaced populations affecting the construction or operation of the Proposed Development is considered to be Negligible.	N/A
Landslide / subsidence	Low	Low	In	A peat slide risk assessment would be undertaken.	Renewable Energy Policy, Carbon Balance and Peat Management
Severe weather: storms	Medium	No	Out	Turbines are equipped with lightning conductors and automatically shut down when wind speeds are at a level which could damage internal components.	N/A
Severe weather: droughts	Very Low	No	Out	The probability of severe drought occurring in the vicinity of the Proposed Development is considered to be very low. Furthermore, turbines would be unaffected by drought conditions.	N/A
Severe weather: extreme temperatures	Low	Very Low	In – severe cold weather could lead to ice build-up on blades.	Ice build-up could lead to ice throw, or to blade damage and throw.	Project Description and other issues chapter.
Floods	Low	Very Low	In – a high level flood risk assessment would be undertaken as part of the EIA.	Damage to turbines or infrastructure from flooding, or increase in flood risk elsewhere from development in flood zones.	Site Selection and Design Evolution, and Hydrology, Hydrogeology & Geology.
Terrorist incidents	No	No	Out	N/A	N/A

Major Accident or Disaster	Risk due to location	Risk due to project	Scoped in/out due to risk	Rationale	EIA Report Chapter
Cyber attacks	No	No	Out	N/A	N/A
Disruptive industrial action	No	No	Out	N/A	N/A
Public disorder	No	No	Out	N/A	N/A
Wildfires	No	No	Out	N/A	N/A
Severe space weather	No	No	Out	N/A	N/A
Poor air quality events	No	No	Out	N/A	N/A
Transport accidents	No	Yes	In – abnormal loads and increase in traffic from construction.	Abnormal loads or an increase in traffic could lead to an increased risk of accidents. Highway network may be unsuitable for such traffic, further increasing accident risk.	Design Evolution and Traffic and Transport.
Industrial accidents	No	Yes	In – from construction and maintenance activities.	Manual labour, working at height and use of specialist plant all bring risk of industrial accidents. Relevant UK health and safety legislation will be adhered to; site construction management practices will include, but are not limited to, temporary diversions of public rights of way, relevant signage and fencing of potentially hazardous construction areas where appropriate.	Construction activities are covered by separate H&S legislation and guidelines. Site Selection and Design Evolution, Geology, Hydrology, and Hydrogeology, and Ecology (pollution).
Electricity, gas, water supply or sewerage system failures	No	Yes	In – site contains electricity transmission cables.	Construction activities or turbine collapse could damage electricity infrastructure. All relevant health and safety legislation will be followed, and industry best practice guidance adhered to. HSE GS6 <i>Avoiding danger from overhead power lines</i> will be followed	Site Selection and Design Evolution; and Existing Infrastructure, Telecommunications and Broadcast Services.
Urban fires	No	No	Out	The Proposed Development is not in close proximity to any urban areas.	N/A

16. Forestry

16.1 Introduction

- 16.1.1 This section sets out the proposed approach to the assessment of potential effects on the forestry within the site boundary during the construction and operation of the Proposed Development.
- 16.1.2 In the UK there is a strong presumption against permanent deforestation unless it addresses other environmental concerns. In Scotland, such deforestation is dealt with under the Scottish Government's Control of Woodland Removal Policy (Forestry Commission Scotland, 2009)⁵³. The purpose of the policy is to provide direction for decisions on woodland removal in Scotland. It will be essential that the Proposed Development addresses and satisfies the requirements of the Policy.

16.2 Baseline Conditions

- 16.2.1 The Project lies within the Eredine and Brenchoille forest blocks which form part of the larger East Loch Awe Land Management Plan (LMP). The woodlands are part of Scotland's National Forest Estate, owned by Scottish Ministers on behalf of the nation, and managed by Forestry and Land Scotland (FLS).
- 16.2.2 The LMP was approved in 2017 and expires in 2027. It describes the forest area together with the management objectives and activities. The primary objective is commercial timber production whilst also delivering a range of secondary objectives.
- 16.2.3 Mixed conifers and broadleaves are widespread on the lower slopes with Sitka Spruce being the dominant species on the upper slopes. There is an intimate matrix of well linked open ground across the forest that contributes to biodiversity and landscape. The LMP area contributes significantly to meeting West Argyll District's timber production targets. Planting commenced in 1935 on the lower slopes with the upper slopes planted between 1967 and 1973. The forest has been extensively restructured through ongoing felling and restocking and has a diverse range of age classes.
- 16.2.4 The forestry baseline will describe the crops existing at time of preparation of the EIA Report. This will include current species; planting year; felling and replanting plans; and other relevant woodland information, where available. The baseline will be compiled from a desk based assessment and field surveys if necessary.
- 16.2.5 The desk based assessment will include landowner crop databases; the Native Woodland Survey of Scotland (NWSS) (Forestry Commission Scotland, 2013)⁵⁴; the National Forest Inventory (Forestry Commission Scotland, 2018)⁵⁵; aerial photography; Scottish Forestry (SF) publicly available databases; and current Policy, Legislation and Guidance.

⁵³ Forestry Commission Scotland (2009). The Scottish Government's Policy on Control of Woodland Removal. Forestry Commission Scotland, Edinburgh.

⁵⁴ Forestry Commission Scotland. (2013) The Native Woodland survey of Scotland [Online] Available from - <https://scottishforestry.maps.arcgis.com/apps/webappviewer/index.html?id=0d6125cfe892439ab0e5d0b74d9acc18>. [Accessed: 04/05/22]

⁵⁵ Forestry Commission Scotland. (2018) The National Forest Inventory Scotland [Online] Available from - https://data-forestry.opendata.arcgis.com/datasets/b71da2b45dde4d0595b6270a87f67ea9_0. [Accessed: 04/05/22].

- 16.2.6 The field survey would consist of a site walkover to verify and update baseline data; assess the crops with respect to integration of the development infrastructure; and to identify any opportunities within the forests for on-site compensatory planting, if required.

16.3 Scope of Assessment

- 16.3.1 Commercial forests are dynamic and constantly changing through, for example, landowner activities; market forces; natural events, such as windblow or pest and diseases; or developments. The forestry assessment will be a factual assessment describing the changes to the physical forest structure resulting from the incorporation of the Proposed Development into the forests. Other relevant chapters within the EIA Report will identify the sensitive receptors relevant to their disciplines and report on the effects of the Proposed Development due to the forestry proposals.
- 16.3.2 There is potential for changes to the forest structure resulting from the Proposed Development, with consequential implications for the wider felling and restocking plans across the remaining parts of the forests. It is anticipated areas of forestry will require to be felled at the time of construction for access tracks, wind turbine locations, other infrastructure and habitat management purposes, which may result in a loss of woodland area. Apart from the crops felled at the time of construction no other proposed development felling is anticipated during the operation and decommissioning phases. Ongoing forestry management, including any further felling and restocking, would be the responsibility of the forest owners as part of their approved plans.
- 16.3.3 Measures to avoid or mitigate potential impacts upon the forest structure will, as far as practicable, sought to be embedded in the design of the Proposed Development through consideration of the siting of the infrastructure; and by using existing access tracks and forest roads where possible. Woodland loss would be minimised by keyholing infrastructure into the felling and / or restocking plans.
- 16.3.4 Potential forms of mitigation may include a redesign of the existing forest structure including, for example, changes to the felling programme; the use of designed open space; alternative species and woodland types; or the provision of compensation planting on or off-site.
- 16.3.5 The changes to the forests for a particular development are regarded as site specific and it is considered that there are no cumulative forestry issues to be addressed, therefore cumulative forestry effects are scoped out of the EIA Report.

16.4 Assessment Methodology

- 16.4.1 The main consultee on forestry matters is Scottish Forestry (SF), Perth and Argyll Conservancy. SF will be consulted to ensure that the proposed changes to the woodlands address the requirements of the Scottish Government's Control of Woodland Removal Policy, the UK Forestry Standard⁵⁶ and other relevant guidance. In addition, there may be interrelated issues raised by other consultees and this will be clearly set out in the EIA Report.
- 16.4.2 A Development Forest Plan will be prepared. This will include a felling plan to show which crops would be felled, and when, for the construction and operation of the Development. It will further include a restocking plan showing any areas to be replanted or areas which are to be left permanently unplanted for the Proposed Development. Felling and Restocking plans, including the

⁵⁶ Forestry Commission (2017). The UK Forestry Standard: The Government's Approach to Sustainable Forestry. Forestry Commission, Edinburgh.

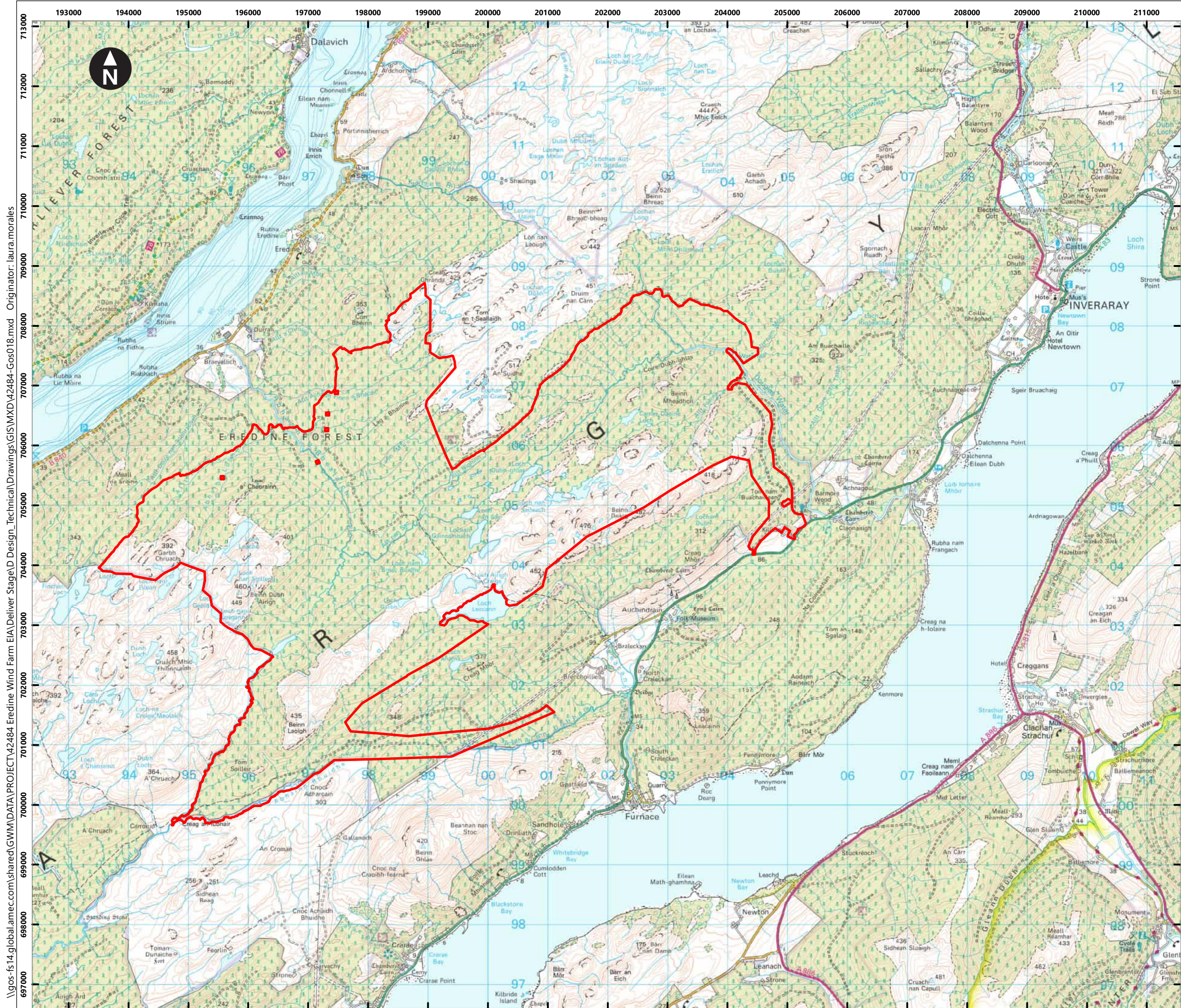
potential for substitute peatland restoration, would be prepared in consultation with the land managers FLS.

- 16.4.3 A key issue will be the integration of the Proposed Development into the existing and proposed forest structure to minimise the loss of woodland area and to ensure the landowners and developers are able to meet their respective management objectives. Forest design and the effect of the Proposed Development on it is an important part of the overall design process. The Proposed Development proposals will be assessed against the felling and replanting plans which form part of the landowners' LMP.
- 16.4.4 The changes to the forest structure will be analysed and described including changes to woodland composition, timber production, traffic movements and the felling and restocking plans. The resulting changes to the forest structure will be assessed for compliance against the UK Forestry Standard (Forestry Commission, 2017) and the Scottish Government's Control of Woodland Removal Policy in line with the methodology outlined in the Control of Woodland Removal Policy Implementation Guidance (Forestry Commission Scotland, 2019)⁵⁷.

⁵⁷ Forestry Commission Scotland. (2019) Guidance to Forestry Commission Scotland staff on implementing the Scottish Government's Policy on Control of Woodland Removal [Online]. Available from - <https://forestry.gov.scot/publications/349-scottish-government-s-policy-on-control-of-woodland-removal-implementation-guidance/viewdocument>. [Accessed:10/04/22]

Appendix A

Figures



Key

Site Boundary

0 500 1,000 1,500 2,000 2,500 3,000 3,500 m

Scale at A3: 1:60,000

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Client

RWE

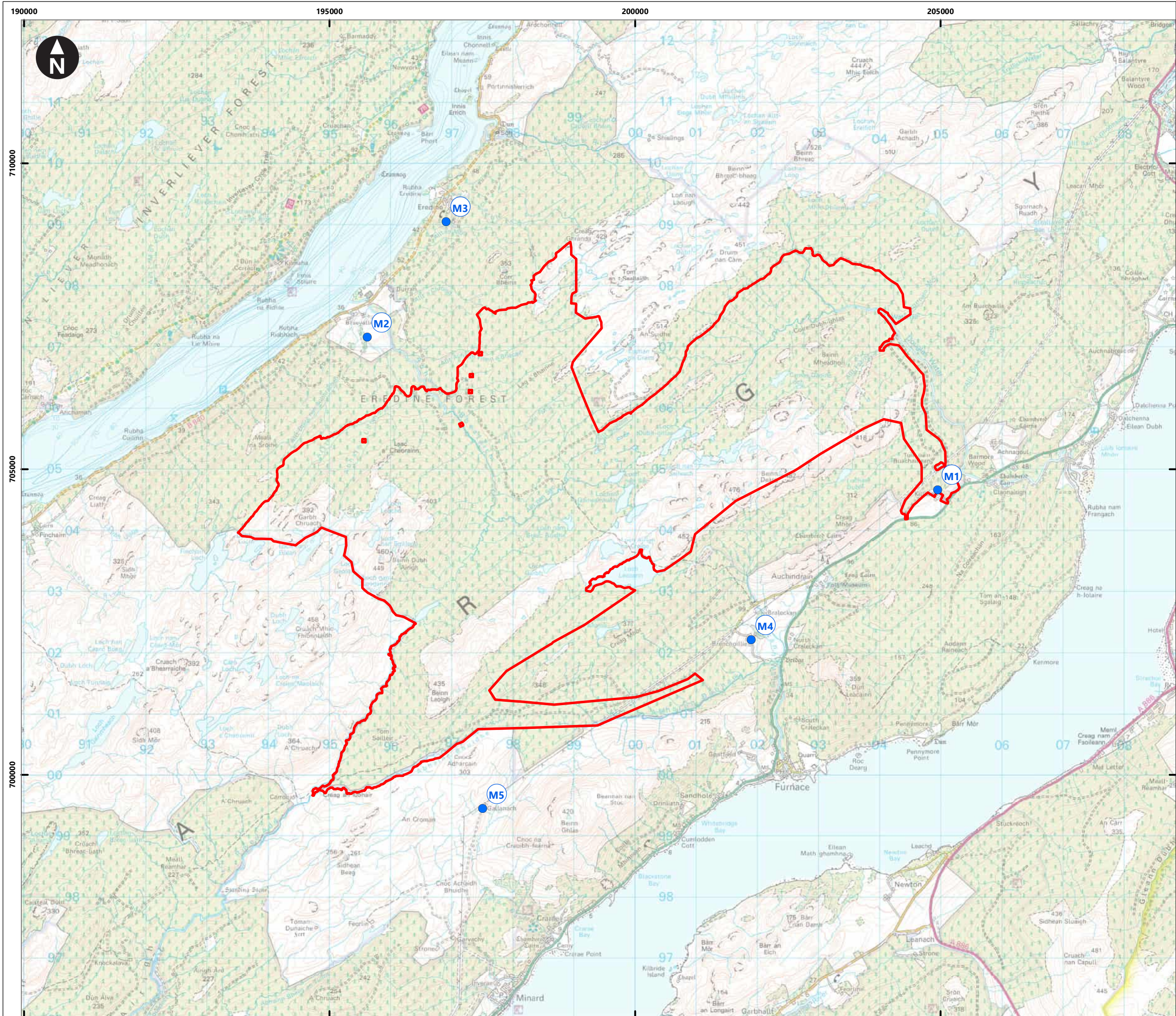
Eredine Wind Farm Application
Scoping Report

Figure 1.1
Site Location

March 2020

● ● ●

wood.



Key

Site boundary

Monitoring Location

- M1 Killean Farmhouse
- M2 Property in Braevalich
- M3 Village of Eredine
- M4 Brenachaille
- M5 Gallanach

0 1 2 3 km

Scale at A3: 1:60,000

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Client

RWE

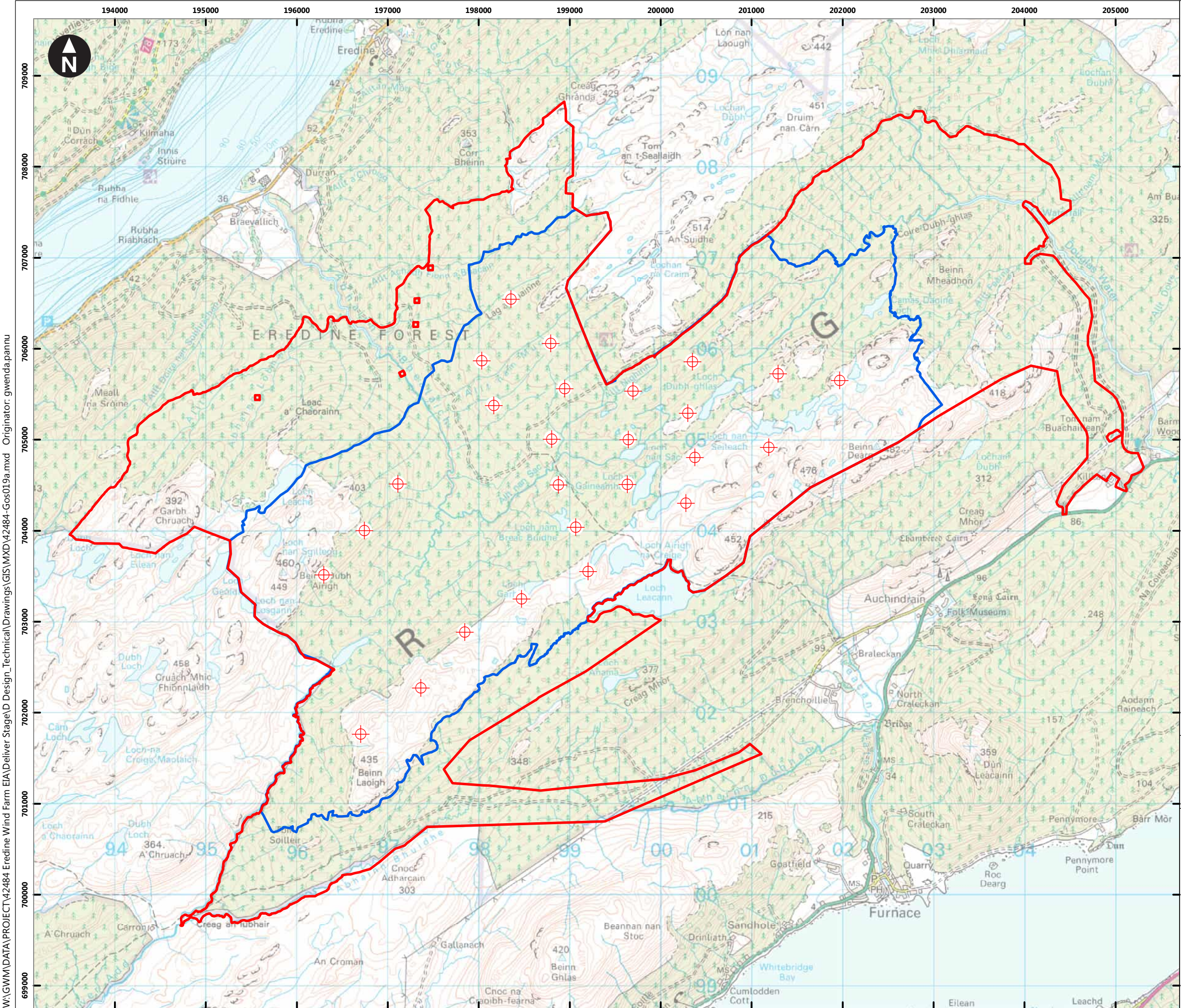
Eredine Wind Farm Application
Scoping Report

Figure 1.1
Siet location plan

May 2022

● ● ●

wood.



Key

- Site boundary
- Wind farm area
- Indicative turbine locations

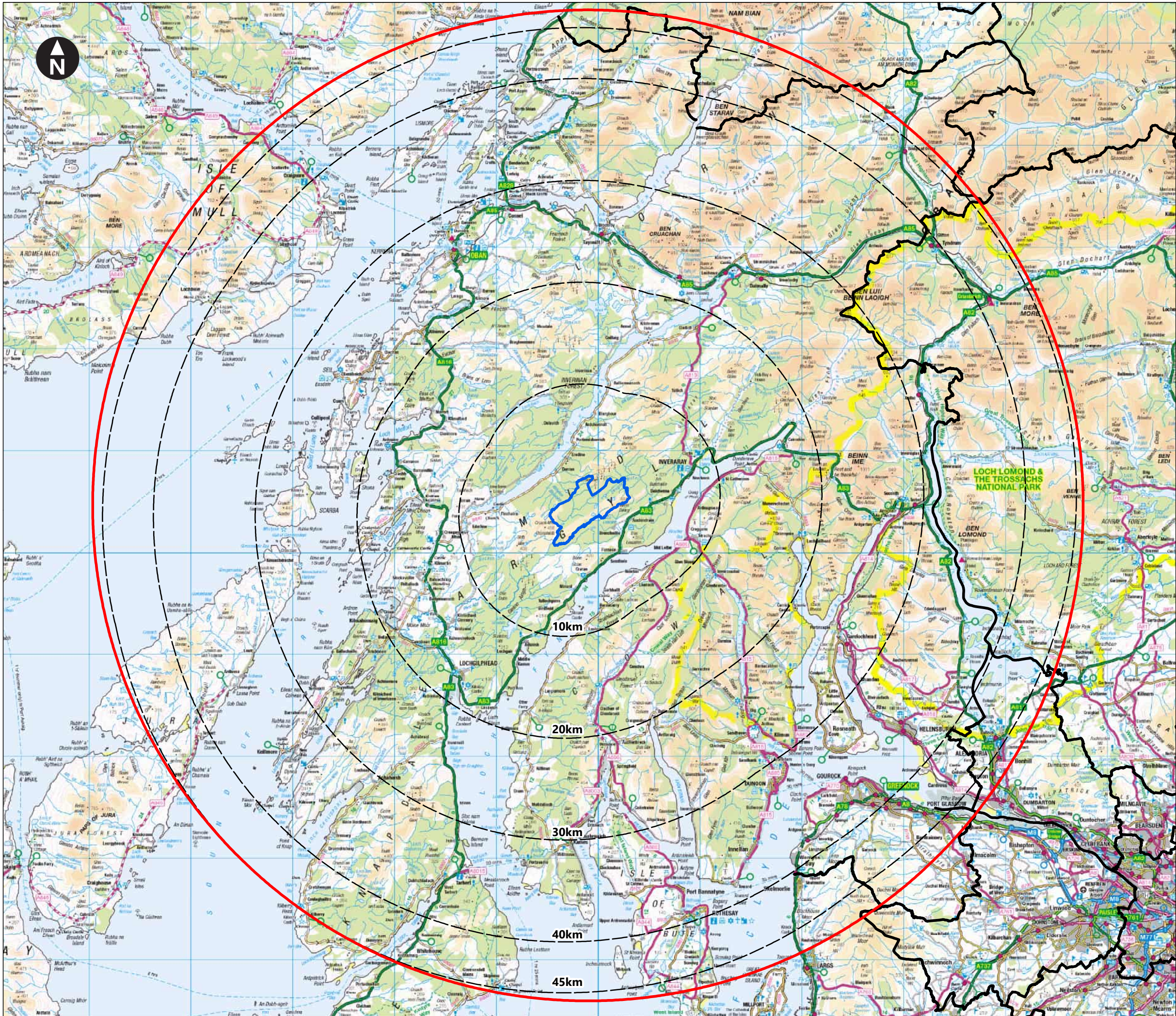
0 500 1,000 1,500 2,000m
Scale at A3: 1:40,000
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Client

Eredine Wind Farm Application
Scoping Report

Figure 1.2
Site boundary and indicative turbine coordinates

W:\GWM\DATA\PROJECT\42484 Eredine Wind Farm EIA\Deliver Stage\Design_Technical\Drawings\GIS\MXD\42484-Gos019a.mxd Originator: gwenda.pannu



Key

- Wind Farm Area
- Landscape and Visual Study Area
- Note: The study area is based on a 48,657m radius circle that allows a minimum of 45km distance from an indicative 26 turbine layout
- Local authority boundaries
- Lines indicating the distance from an indicative 26T layout

0 2 4 6 8 10 12 14 16 18 20 km

Scale at A3: 1:360,000

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Client

RWE

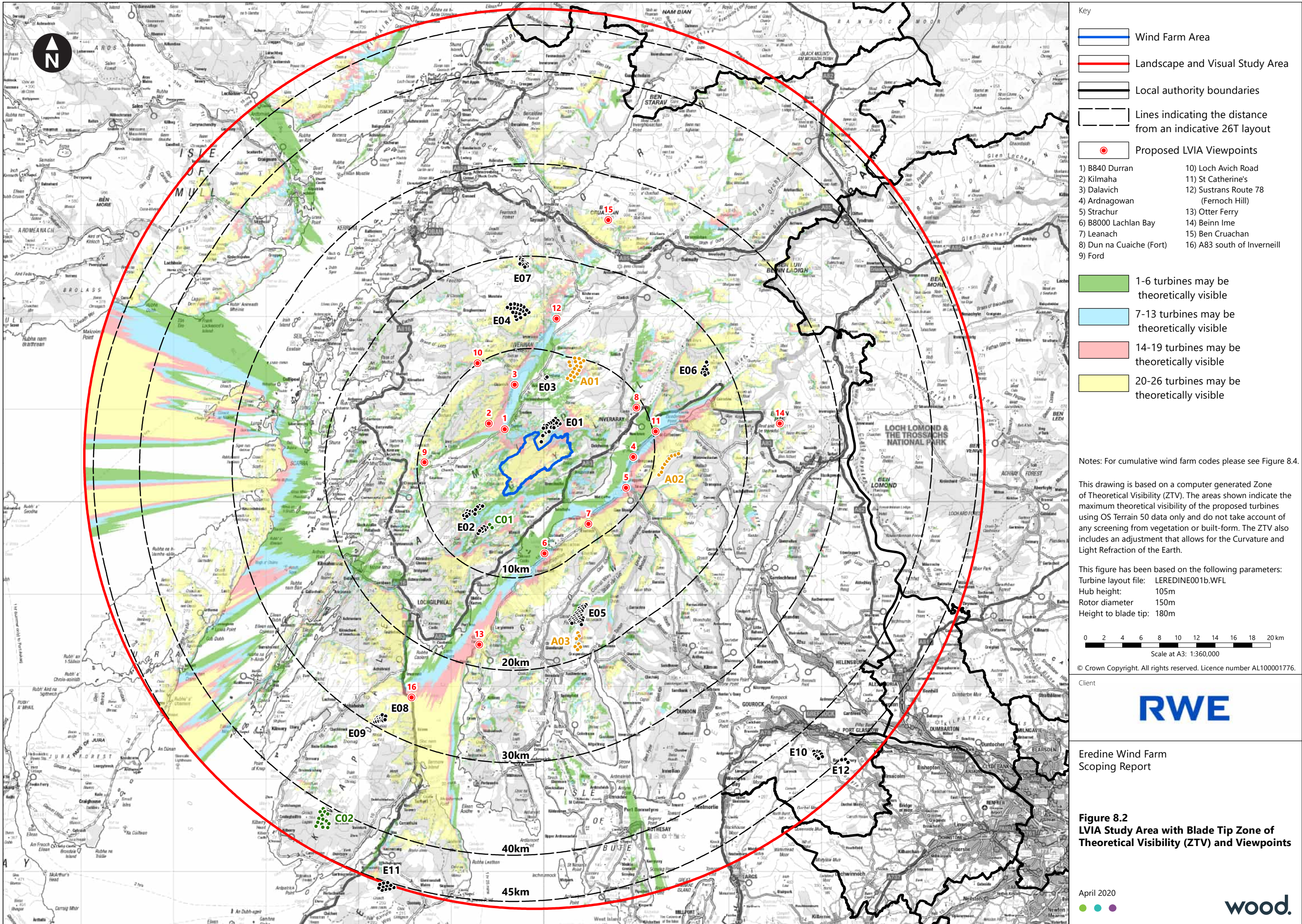
Eredine Wind Farm
Scoping Report

Figure 8.1
LVIA Study Area

April 2020

wood.

Figure 8.1 LVIA



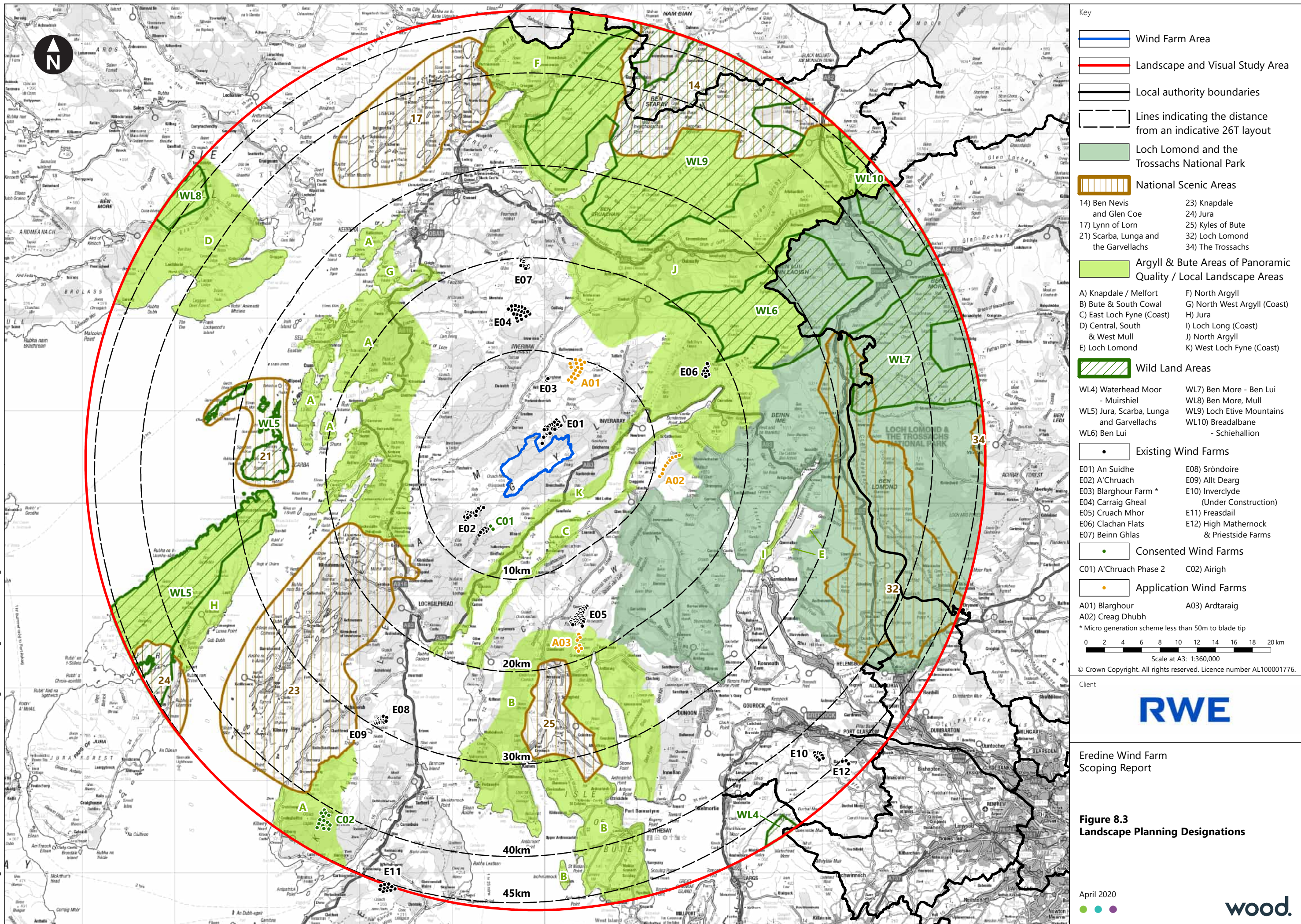


Figure 8.3 Designations

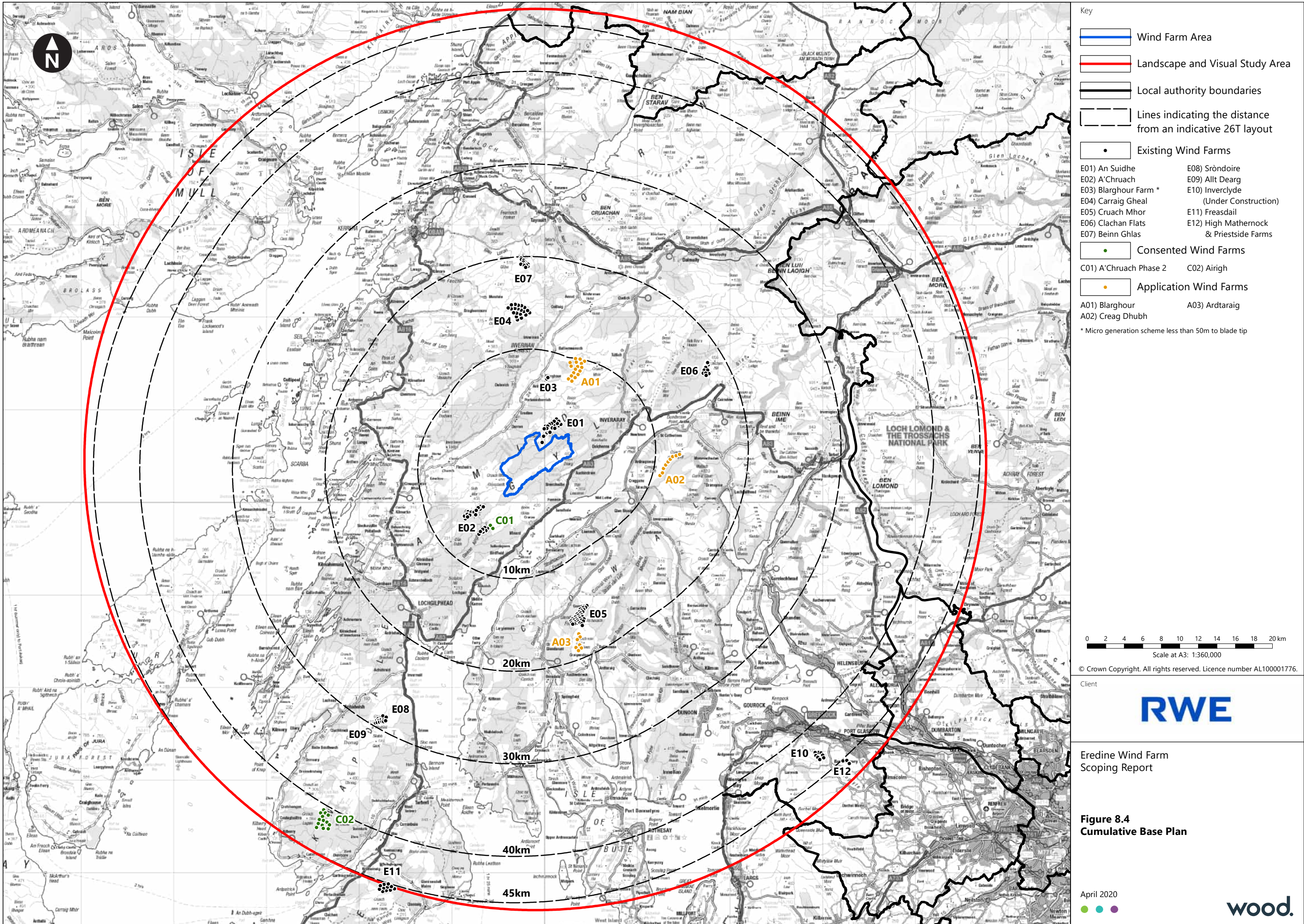
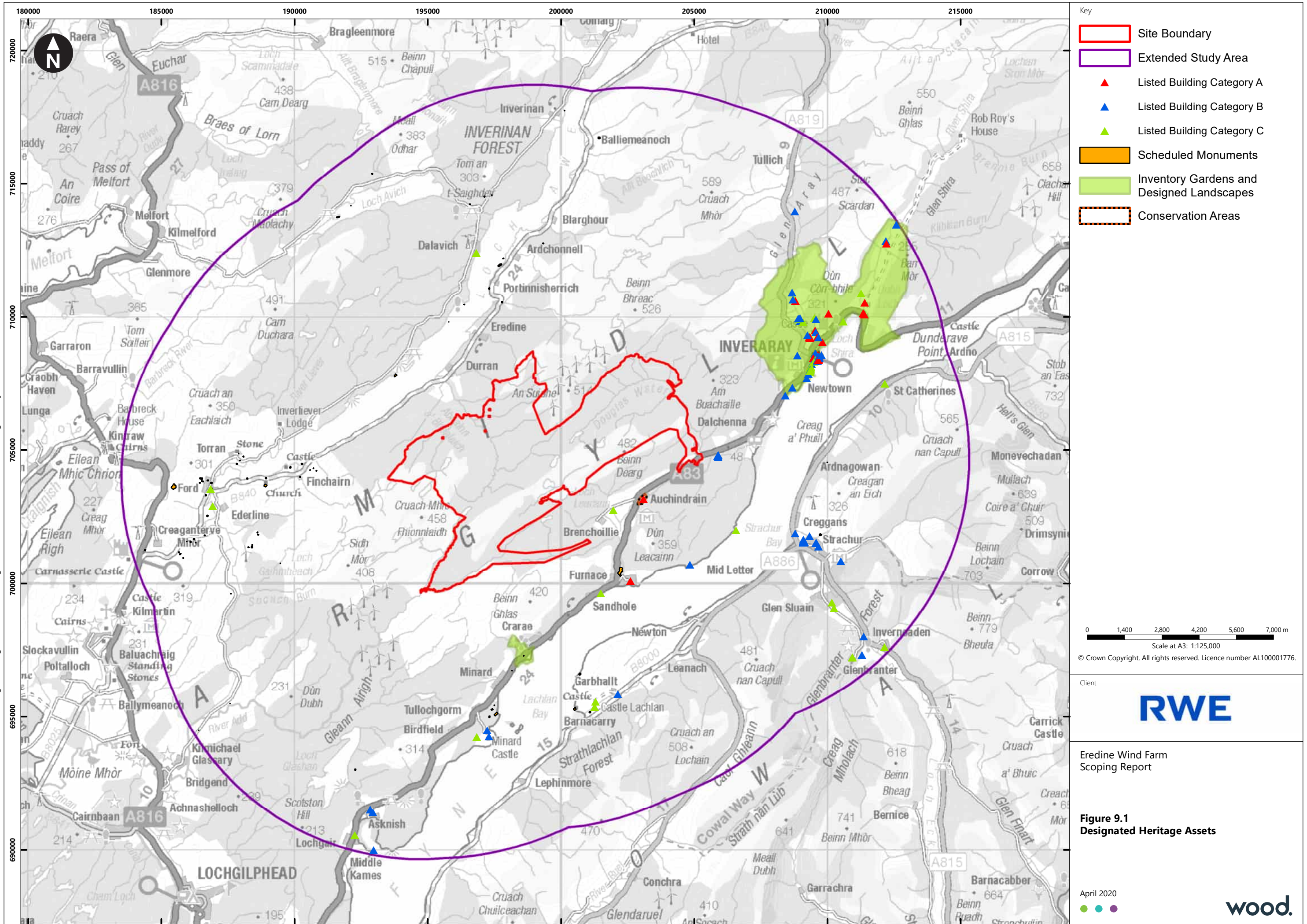


Figure 8.4 Cumulative Base Plan



Appendix B

2020 Scoping Opinion Summary

