



An Càrr Dubh Wind Farm EIA Report

March 2023

Non-Technical Summary



An Càrr Dubh Wind Farm
Environmental Impact Assessment (EIA) Report
Non-Technical Summary

Prepared by
LUC
on behalf of
Car Duibh Wind Farm Limited

March 2023



Preface

This Non-Technical Summary (NTS) of the An Càrr Dubh Wind Farm Environmental Impact Assessment (EIA) Report has been prepared in support of an application by Car Duibh Wind Farm Limited (Ltd) (a company wholly owned by Statkraft UK Limited) ('the Applicant') to the Scottish Government Energy Consents Unit (ECU) for Section 36 consent to construct and operate An Càrr Dubh Wind Farm ('the Proposed Development') in the Argyll and Bute Council (ABC) administrative area. Turbine 1 (T1) of the Proposed Development is the closest to Inveraray, located approximately 6 kilometres (km) to the north-west, and T13 is the closest to Dalavich, approximately 4.5km to the east. The Proposed Development will comprise up to 13 wind turbines with energy storage and other associated infrastructure.

The EIA Report comprises the following volumes:

- Volume 1: Written Text;
- Volume 2: Figures);
- Volume 3 (a): Landscape and Visual Impact Assessment Visualisations (Viewpoints 1-10) (NatureScot format);
- Volume 3 (b): Landscape and Visual Impact Assessment Visualisations (Viewpoints 11-20) (NatureScot format);
- Volume 3 (c): Landscape and Visual Impact Assessment Visualisations (Viewpoints 21-31) and Wireframes from Omitted Viewpoints) (NatureScot format);
- Volume 3 (d): Appendix 10.1 Cultural Heritage Assessment Visualisations (Viewpoints CH1-18); and
- Volume 4: Appendices (this volume).

In addition to the above, the application is accompanied by a Planning Statement, a Design and Access Statement and a Pre-Application Consultation (PAC) Report.

A hard copy of the EIA Report will be available for public viewing during the application consultation period at the following address:

Argyll and Bute's Lochgilphead Customer Service Point
1A Manse Brae
Lochgilphead
PA31 8RD

Copies of the EIA Report and further information may be obtained by contacting Car Duibh Wind Farm Ltd on 0800 772 0668 or by emailing uk-post@statkraft.com. A hard copy of the EIA Report is available at cost of printing and postage. Hard copies of the Non-Technical Summary (NTS) are available free of charge.

The documents will also be available for viewing online on the Scottish Government ECU planning portal (<https://www.energyconsents.scot/ApplicationSearch.aspx>) , ABC planning portal (<https://www.argyll-bute.gov.uk/planning-and-environment/find-and-comment-planning-applications>) and on the application website (<http://www.ancarrdubh.co.uk/>) .

Any public representations to the application may be submitted via the ECU website at www.energyconsents.scot/Register.aspx; by email to the Scottish Government, Energy Consents Unit mailbox at representations@gov.scot; or by post to the Scottish Government, Energy Consents Unit, 4th Floor, 5 Atlantic Quay, 150 Broomielaw, Glasgow, G2 8LU, identifying the proposal and specifying the grounds for representation. The Applicant will advertise the submission of the Section 36 application in the local and national press and on the dedicated project website. The advert will state the deadline for submitting representations to Scottish Ministers

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Image 1: Photomontage of the Proposed Development from Dalavich Jetty (LVIA Viewpoint 2)

1. Introduction

Introduction

1.1 This document is a Non-Technical Summary (NTS) of the Environmental Impact Assessment Report (EIA Report) which accompanies an application for development consent made by Car Duibh Wind Farm Limited (a company wholly owned by Statkraft UK Limited, hereafter referred to as 'the Applicant'). The NTS summarises the key findings of the EIA which has been undertaken by LUC and technical specialist consultants on behalf of the Applicant to assess the effects of the construction and operation of An Càrr Dubh Wind Farm (hereafter referred to as 'the Proposed Development').

1.2 The Proposed Development is located on the plateau between Loch Awe to the north-west and Loch Fyne to the south-east within the Argyll and Bute Council (ABC) administrative area. The location of the Proposed Development is shown in **Figure 1**.

1.3 The Proposed Development will comprise up to 13 turbines, up to a maximum blade tip height of 180m and an energy storage facility, as well as a network of new access tracks and other supporting infrastructure.

1.4 As the Proposed Development will have an installed capacity of over 50 megawatts (MW), consent is required from the Scottish Ministers (via the Energy Consents Unit (ECU)) in consultation with consultees including ABC¹. The consenting requirement for energy generation projects over 50MW is set out under Section 36 of the Electricity Act 1989. As part of this Section 36 application, deemed planning permission will also be requested under Section 57 of the Town and Country Planning (Scotland) Act 1997 (as amended) to construct and operate the Proposed Development.

1.5 A glossary of terms is provided as **Appendix 1** of this NTS.

The Applicant

1.6 The application will be made by Car Duibh Wind Farm Ltd (a wholly owned subsidiary of Statkraft UK Ltd). Statkraft is a leading company in renewable generation internationally and is Europe's largest generator of renewable energy. The Group produces hydropower, wind power, solar power, gas-fired power and supplies district heating. Statkraft is a global company in energy market operations and has 5,300 employees in 21 countries.

1.7 Statkraft is at the heart of the UK's energy transition. Since 2006, Statkraft has gone from strength to strength in the UK, building experience across wind, solar, hydro, storage, grid stability, electric vehicle (EV) charging, green hydrogen and a thriving markets business. Statkraft has invested over £1.3 billion in the UK's renewable energy infrastructure and facilitated over 4 gigawatts (GW) of new-build renewable energy generation through Power Purchase Agreements (PPA). In the UK, Statkraft employs over 300 staff in England, Scotland, and Wales, and plays a key role in helping the global business reach its goal of 9GW of developed wind and solar power by 2025.

Environmental Impact Assessment

1.8 EIA is required where a proposed development has the potential to result in significant environmental effects. As it is considered possible that the Proposed Development may result in significant environmental effects, an EIA has been undertaken to accompany the application for Section 36 consent.

1.9 EIA involves the compilation, evaluation and presentation of any likely significant environmental effects resulting from a proposed development, to assist the consenting authority, statutory consultees, and wider public in considering an application.

1.10 EIA is an iterative process whereby the identification and assessment of effects can also inform the design of a

¹ Whilst ABC is not the determining authority, its inputs will be key to the decision making process.

proposed development so that potentially significant adverse environmental effects can be avoided, reduced and if possible, removed at an early stage. A proposed development can then be refined to further avoid or reduce potential environmental effects, where necessary, through the use of mitigation measures.

1.11 The EIA Report presents information on the identification and assessment of the likely significant environmental effects resulting from the Proposed Development across a number of environmental topics. The significance of these effects has been assessed using criteria defined in the topic chapters of the EIA Report. Where appropriate, or as otherwise defined, the significance of effects has been categorised as major, moderate, minor or negligible. In the context of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (hereafter referred to as the 'EIA Regulations') likely effects assessed as being of 'major' or 'moderate' significance are considered to be significant effects.

1.12 The scope of the EIA was informed by the Scoping Opinion provided by the Scottish Government ECU in August 2021, and included comments from a number of consultees, including ABC, Historic Environment Scotland (HES) and NatureScot.

1.13 As required by the EIA Regulations, the EIA Report has been prepared by 'competent experts' in relevant specialisms.

Overview of the Site and the Proposed Development

1.14 The Site is located on the plateau between Loch Awe to the northwest and Loch Fyne to the southeast. Settlements nearby are generally located within the glens and adjacent lochs, with Turbine (T) 1 of the Proposed Development being the closest to Inveraray, located approximately 6km to the north-west, and T13 being the closest to Dalavich, which is located approximately 4.5km to the east. A number of small clusters of residential properties are found scattered along the shores of Loch Awe, with the closest properties to the Site located at Ardchonnell and Blarghour, over 1km from the Site boundary.

1.15 The area where turbines are proposed to be sited comprises undulating moorland plateau with rocky outcrops, orientated north-east to south-west, with frequent lochans in lower lying areas.

1.16 Large areas of commercial forestry are found adjacent to the Site, extending down the lower slopes to the east, south and west, with forested areas also located within the eastern extent of the Site boundary to the west of Inveraray.

1.17 The Site is located within the Kames River, Allt Blarghour, River Aray and Douglas Water catchments. There are many watercourses and lochans within the Site, including the Eas an Amair (a tributary of the Allt Blarghour), the Erallich Water and Allt Bail' a Ghobhainn (tributaries of the River Aray), and numerous smaller named and unnamed tributaries.

1.18 The Proposed Development will be accessed via the A82, south of Inveraray. Abnormal load vehicles will follow the 'Inveraray bypass' (also known as Upper Avenue) outlined separately on **Figure 2**, where some widening and realignment of the existing track will be required. The access will then join the A819 for a short section, approximately 1.2km long, before accessing the Site, south of Electric Cottage.

1.19 There are three Core Paths within or traversing the Site access and the Inveraray Forest Circuit forms a loop around Inveraray, following the Core Paths within the Site. The Caledonia Way cycle route is located on the western side of Loch Awe approximately 4.8km from T12. There are a number of other recreational routes located within 15km of the Site.



Image 3: Photomontage of the Proposed Development from B840 North of Balliemeanoch (LVIA Viewpoint 3)

2. Development Description

The Proposed Development

2.1 The main components of the Proposed Development will comprise the following, as shown in **Figure 2**:

- Up to 13 wind turbines, each with a maximum tip height of up to 180m. The currently considered candidate turbine has a rated capacity of 6.6MW;
 - Foundations supporting each wind turbine;
 - Associated crane hardstandings and adjacent laydown areas at each turbine location;
 - A network of onsite access tracks of approximately 23.1km (of which approximately 6.6km will be upgraded existing track and 16.5km will be new track);
 - 105 watercourse crossings and associated infrastructure (31 upgraded existing crossing and 74 new crossings);
 - A network of underground cables and cable trenches to connect the turbines to the onsite substation;
 - A permanent anemometer (meteorological mast) of up to 102.5m in height and associated track;
 - Vehicle turning areas and onsite passing places (location and size to be determined by the turbine supplier);
 - Site signage;
 - A permanent compound containing the control building, substation and energy storage facility; and
 - An Outline Restoration and Enhancement Plan (OREP) for peat, biodiversity, landscape and forestry (further details provided below).
- 2.2** In addition to the above components of the operational Proposed Development, construction of the Proposed Development will also require the following components:
- One temporary construction compound;
 - The creation of one temporary borrow pit for the extraction of stone, and the reopening/use of two existing borrow pits;
 - Concrete batching, with the exact location of the batching plant to be confirmed, although it is likely that this will be in the new borrow pit, or construction compound.
 - Junction widening and upgrades on the A83 and the A819; and an upgraded access off the A83 into the Site; and
 - Felling of approximately 3.77 hectares (ha) of forestry to facilitate access during construction.
- 2.3** Two blade transfer areas will also be required to facilitate construction of the Proposed Development; however, these do not form part of this application for consent, as there is a degree of uncertainty associated with the final locations and requirements. The potential effects associated with the likely locations of the blade transfer areas were nevertheless assessed in the EIA. No significant in-combination effects of the blade transfer areas, in combination with the Proposed Development, were predicted for any of the topics. The Applicant is committed to engaging with communities in relation to any future planning application for the blade transfer areas once there is more certainty of exact locations.

Access

2.4 The Proposed Development will be accessed via the Site entrance from the A819. Abnormal loads will access via the Inveraray bypass before joining the A819 for a short section, approximately 1.2km long, before accessing the Site, south of Electric Cottage. The Inveraray bypass will connect the A83, to the south of Inveraray to Upper Avenue and subsequently to the A819 to the north-west of Inveraray and will only be used by abnormal loads traffic and no other vehicles. All other vehicles will access the Site via the A83 (T) and the Site entrance from the A819.

Forestry

2.5 There is no forestry located in the area where turbines are proposed. However, an area of woodland is located adjacent to the existing access track.

2.6 The proposed access to the Site would require limited felling of 3.77ha of woodland which will not be replanted in the same area, to ensure that future access to the Site is maintained. However, to prevent overall woodland loss, compensatory planting of 3.77ha of forestry is proposed within the Site, in line with Scottish Government Policy and other guidance.

Aviation Lighting

2.7 In the interest of aviation safety and in accordance with aviation legislation/policy, night-time aviation lights will be installed on the hubs of seven of the 13 turbines. The hub houses the mechanical equipment, which is located at the top of the turbine.

Lifespan of the Proposed Development

2.8 Subject to the granting of the consent, it is anticipated that the construction of the Proposed Development will last for up to 18 months. Consent is being requested to operate the Proposed Development for 40 years.

2.9 At the end of the 40 year operational period, the Proposed Development may be fully decommissioned, or an application may be made to extend its operational life. It is estimated that decommissioning would take approximately 12 months. This would involve the dismantling and removal of the wind turbines and electrical equipment, as well as restoring the turbine areas, hardstandings and tracks.

Embedded Mitigation Measures

2.10 Embedded mitigation measures, comprising general good practice measures, will be employed as standard techniques during the construction of the Proposed Development. Therefore, these measures are considered to be an integral part of the design and implementation of the construction phase. This is considered a realistic scenario given the current regulatory context and accepted good practice across the construction industry.

2.11 These measures include:

- A Construction and Environmental Management Plan (CEMP);
- A Construction Traffic Management Plan (CTMP); and
- A Peat Management Plan.

2.12 Embedded mitigation can also include measures adopted as part of the design of the Proposed Development to

avoid the potential for significant effects on specific receptors. For example, where possible, a 50m buffer has been applied to all watercourses (i.e. the receptor) as embedded mitigation to minimise the potential for run-off and pollution to affect water quality. Where relevant, embedded mitigation measures, including those incorporated through the design process, are mentioned below.

Benefits of the Proposed Development

Environmental Benefits

Carbon Balance

2.13 The purpose of the Proposed Development is to generate electricity from a renewable source of energy, offsetting the need for power generation from the combustion of fossil fuels. The Proposed Development will also potentially contribute to the decarbonisation of heat and transport networks and ultimately contribute towards Scotland's net zero obligations. Consequently, the electricity that will be produced by the Proposed Development will result in a saving in emissions of carbon dioxide (CO₂) with associated environmental benefits.

It is calculated that the CO₂ emissions that will be emitted as part of the construction of the Proposed Development will be paid back within approximately 8 months (0.7 years). Following this period, the Proposed Development will, in effect, be in a net gain situation and will contribute to national objectives to reduce carbon emissions.

Habitat Management

2.14 An OREP for peat, biodiversity, landscape and forestry has been prepared. This outlines details of proposals which the Applicant is committed to exploring to provide mitigation and also biodiversity enhancements within the Site. The OREP will be further developed through consultation with key stakeholders and further research, and will culminate in a more formal plan to be implemented and monitored during the lifetime of the Proposed Development.

2.15 The OREP includes proposals for the restoration of peatland habitats, which may provide further ecological and ornithological benefits, riparian tree planting, water vole monitoring and provision of pine marten and red squirrel boxes.

The Outline Restoration and Enhancement Plan is expected to provide opportunities for substantial, interrelated environmental enhancements at the An Càrr Dubh Wind Farm Site with respect to the peat resource, biodiversity, forestry and landscape.

Community Benefits

It is estimated that the number of households that could be potentially powered by the Proposed Development is 95,872 per annum.

2.16 As well as contributions to the generation of low carbon electricity and the resulting offsetting of carbon emissions, the Proposed Development also provides the opportunity for local communities to benefit financially from its operation through annual payments of £5,000 per MW installed per year for a Community Benefit Fund, as recommended by the Scottish Government Good Practice Principles for Community Benefits from Onshore Renewable Energy Developments². The total amount of community benefit available will be determined by the actual installed capacity of the wind farm, should it be consented and constructed.

At this stage based on the candidate turbine, the wind farm will have a maximum installed capacity of 85.8 MW, which would mean a maximum of £429,000 available for community benefit per annum (£5,000 per MW of installed capacity).

2.17 In addition, the Applicant is also committed to offering shared ownership of the Proposed Development to the community and supporting broadband provision within the community.

² <https://www.gov.scot/publications/scottish-government-good-practice-principles-community-benefits-onshore-renewable-energy-developments/documents/>



Image 4: Photomontage of the Proposed Development from Minor road to west of Loch Awe (north of Dalavich) (LVIA Viewpoint 5)

3. Site Selection and Design Strategy

Site Selection

3.1 The Site was selected by the Applicant for a number of reasons, including the following:

- The Site has an excellent wind resource and is available for wind energy development.
- There are no international or national designations for landscape or nature conservation within the Site.
- There is no forestry within the Site, and minimal felling required, limited to the access.
- There are no key environmental constraints that would preclude development, or which cannot be avoided through design.
- The size of the Site allows for good opportunities to provide extensive habitat management and enhancement. Further details are set out in the OREP.
- The closest turbines are located over 2.5km from the nearest residential receptors.
- The closest settlements of Dalavich, Inverinan and Inveraray are approximately 4.5km, 5.3km and 5.5km away from the nearest turbines respectively.
- There are a number of nearby wind farms including the operational An Suidhe Wind Farm to the south-west, and the consented Bhlargour Wind Farm to the north.
- There is a feasible grid connection available, as advised by the network operator SSEN. The grid connection will be the subject of a separate application by SSEN.
- The Site is accessible for construction traffic and turbine deliveries.

Design Process

3.2 The final design of the Proposed Development (see **Figure 2**) is the outcome of an iterative process which has aimed to balance achieving the maximum energy yield possible for the Site whilst also minimising potential effects on the environment.

3.3 The starting point for the design was landscape and visual led, including consideration of how the Proposed Development will be perceived by people within the surrounding area, and to what extent the landscape is capable of accommodating the Proposed Development.

3.4 The layout of the Proposed Development evolved through a number of design iterations. The layout iterations took into account emerging survey findings, as well as the feedback received following consultation with the consultees and public to avoid or minimise likely significant environmental effects.

3.5 The main components of the Proposed Development considered in the initial design iterations were the turbines. The location of other infrastructure components was largely dictated by the positioning of the turbines, and was designed around onsite environmental constraints including:

- Peat (avoiding areas of peat >0.5m deep where possible);
- Hydrology (maintaining a 50m buffer on watercourses where possible and minimising watercourse crossings);
- Ornithology;
- Habitats, including Groundwater Dependant Terrestrial Ecosystems (GWDTEs);
- Cultural Heritage; and
- Engineering Considerations (including slope and terrain).

3.6 Further detail can be found in **Chapter 3: Site Selection and Design Strategy** of the EIA Report and the Design and Access Statement which also accompanies the application for consent.



Image 5: Photomontage of the Proposed Development from Kilmaha Viewpoint (LVIA Viewpoint 9)

4. Landscape and Visual Amenity

Introduction

4.1 The landscape and visual amenity assessment (LVIA) considered the potential effects of the Proposed Development on landscape and views from key viewpoints, surrounding routes, residential properties and settlements during construction and operation. The cumulative landscape and visual impact assessment included consideration of operational and under construction developments as well as those which are subject of a valid planning application/ application for consent.

4.2 To support assessment of the effects of the Proposed Development on visual amenity, 26 viewpoints within the 45km Study Area were selected and agreed with ABC and NatureScot. To show what the Proposed Development is likely to look like from these viewpoints, photomontage visualisations have been prepared for each.

4.3 The Applicant has sought to minimise the requirement for aviation lighting; however, this will be required on seven of the turbines. To assess the visual effects of night-time aviation lighting, 'dark' photomontages have also been prepared for three viewpoints: Dalavich, the Folly at Dun na Cuaiche and Beinn Bhuidhe. These are representative of the locations from where residential and recreational receptors are likely to see the aviation lights at night.

4.4 The method for assessment included field survey, computer modelling, creation of Zones of Theoretical Visibility (ZTVs), mapping and photography.

Baseline Conditions

4.5 The Site is not within any designated landscapes. However, there are several landscape designations within 15km of the Proposed Development, including the Loch Lomond and the Trossachs National Park, Ben Lui Wild Land Area (WLA) and several local landscape designations (West Loch Fyne Coast Area of Panoramic Quality (APQ), North Argyll APQ, East Loch Fyne Coast APQ).

4.6 There are a number of small settlements within 15km of the Proposed Development, and those with theoretical visibility of the Proposed Development include Dalavich,

Inverinan, Ford, St. Catherine's and Strachur. There is no theoretical visibility from the larger settlement of Inveraray.

4.7 Two main recreational routes were identified within 15km of the Proposed Development including the cycle route running along the minor road to the west of Loch Awe, and the Cowal Way at distances of approximately 12km to the south-east of the Proposed Development.

Embedded Mitigation

4.8 The mitigation of potential landscape and visual effects has been embedded through the design process and the Applicant has sought to minimise the potential effects through careful consideration of the composition of the Proposed Development in key views, such as from Dalavich.

Assessment of Effects

Construction Effects

4.9 A number of significant effects have been identified during the construction period, including due to ground disturbance, the presence of tall cranes and the movement of plant and machinery. In the short term, these will typically be limited to the immediate vicinity from which activities may be perceptible. Over time, these will be replaced by the longer-term operational effects due to the introduction of the turbines as tall structures in the landscape.

Operational Effects

Landscape

4.10 Significant (Major) effects are predicted for Landscape Character Type (LCT) 7: Craggy Upland, within up to approximately 10km of the Site, reducing to Not Significant (minor) elsewhere. **Significant (Moderate)** effects are predicted for LCT 6a: Loch Fyne Upland Forest Moor Mosaic and 20: Rocky Mosaic LCT, within 4km and 5km of the Site, respectively. Beyond this, effects on LCTs will not be significant.

Visual

4.11 Significant effects on views are predicted at nine of the 26 representative viewpoints:

- Viewpoint 1: Loch Awe (**Major**);
- Viewpoint 2: Dalavich Jetty (**Major**);
- Viewpoint 4: Folly at Dun na Cuiache (**Major**);
- Viewpoint 5: Minor Road to west of Loch Awe (**Major**);
- Viewpoint 7: Core Path above Inverinan (**Moderate**);
- Viewpoint 9: Kilmaha Viewpoint (**Moderate**);
- Viewpoint 11: Loch Avich, east of Loch Avich House (**Moderate**);
- Viewpoint 15: Fincham Castle, Loch Awe (**Moderate**); and
- Viewpoint 16: B840, East of Ford (**Moderate**).

4.12 In addition, in the event that a substantive part of the intervening forestry is felled in the future, the Not Significant (minor) effect identified at Viewpoint 13: Loch Avich could increase to **Significant (Moderate)**.

4.13 The settlements of Dalavich and Inverinan are expected to experience **Significant (Major) and Significant (Moderate)** effects, respectively. The minor road and cycle route to the west of Loch Awe is also expected to experience **Significant (Moderate)** effects. In addition, a short section of the B840, near Ford, is identified as having **Significant (Moderate)** effects. However, the remainder of the route would experience Not Significant (minor) effects.

Designated Landscapes

4.14 Significant (Moderate) effects are predicted within the North Argyll APQ. However, these significant effects would not be experienced across the entirety of the APQ, but within approximately 17km of the Proposed Development on the site-facing slopes leading to the summit of Beinn Bhuidhe. No other significant effects are expected in relation to landscape designations within the Study Area.

Cumulative Effects

4.15 The Cumulative Landscape and Visual Impact Assessment (CLVIA) has considered potential effects with other operational, under construction and consented wind farm schemes, as well as wind farms which are the subject of undetermined valid planning applications (including selected applications at Scoping stage as requested by consultees).

4.16 Overall, for the three LCTs above for which significant effects have been predicted, future cumulative effects are not judged to be of a greater significance than those of the

primary Landscape and Visual Amenity Impact Assessment (LVIA).

4.17 Cumulative effects on viewpoints, settlements and routes are predicted to be of no greater significance than for the Proposed Development in isolation. No significant cumulative effects are predicted for designated landscapes.

Mitigation Measures

4.18 Beyond embedded mitigation through design and reinstatement of disturbance associated with the construction of the Proposed Development, no additional mitigation measures have been identified that would materially reduce the level of effects assessed.

Residual Effects

4.19 The residual effects will remain as those outlined above for the operational phase of the Proposed Development.

Some landscape and visual effects are inevitable as a result of introducing a wind farm to the landscape. However, the Applicant has carefully designed the scheme to minimise significant effects from key viewpoints and sensitive locations where possible.



Image 6: Showing a view of the Site, looking west towards Lochan Allt an Sgadain in the foreground and Lochan Eisce Mhoir in the background

5. Geology, Hydrology, Hydrogeology and Peat

Introduction

5.1 This chapter considers the potential effects of the Proposed Development on geology, hydrology, hydrogeology and peat. It details the baseline environmental conditions, based on desk studies and a comprehensive field survey.

5.2 The assessment was undertaken based on the findings of field survey, consultation and desk-based data collection. This included detailed peat surveys, hydrological surveys, Ground Water Dependent Terrestrial Ecosystem (GWDTE) surveys and a watercourse crossing assessment.

Baseline Conditions

5.3 The Proposed Development is located within the Kames River, Allt Blarghour and River Aray catchments in Argyll and Bute. There are many watercourses and lochans within the Site, including the Eas an Amair (a tributary of the Allt Blarghour), the Erallich Water and Allt Bail' a Ghobhainn (tributaries of the River Aray), and numerous smaller tributaries.

5.4 Most of the turbines and associated infrastructure are located within the Eas an Amair catchment, a tributary of the Allt Blarghour.

5.5 SEPA Flood Maps indicate that flood extents within the Site are generally confined close to the watercourse channels and flooding is not considered an issue within or downstream of the Site.

5.6 There are no designated conservation sites within or close to the Site boundary.

5.7 The Site falls within a drinking water catchment where a Scottish Water abstraction is located. The Douglas Water supplies the nearby Inveraray Water Treatment Works (WTW).

5.8 Three hydropower schemes are located in close proximity to the Site. These are the Blarghour hydropower scheme on the Allt Blarghour, the Kames hydropower scheme on the Kames River, and the Maltland hydropower scheme on the Allt Riabhachan watercourse.

5.9 There are no Private Water Supplies (PWS) within the Site, however an assessment of two PWS that are within 1km of the Site boundary was carried out.

5.10 The NatureScot (2016) Carbon and Peatlands Map indicates that carbon-rich soils, deep peat, and large areas of priority peatland habitat are present within the Site.

5.11 The presence of peat was confirmed by detailed peat probing. Over 5,360 peat depths probes were collected which recorded peat across the majority of the Site, with 61% of probes recording depths over 50cm, and 35% of probes recording depths greater than 1m in depth.

5.12 Areas of potential GWDTEs were identified during ecology surveys. A dedicated walkover survey of potential GWDTEs was then undertaken by the project's hydrologists and used to inform the GWDTE assessment. Several GWDTEs were confirmed within the Site.

Embedded Mitigation

5.13 Embedded mitigation measures include, avoidance of deep peat, 50m buffers from watercourses, buffers from GWDTEs and the implementation of Sustainable Drainage Systems (SuDS) for treatment and attenuation of surface water runoff.

5.14 Details of the embedded mitigation will be set out in detail prior to construction in a Pollution Prevention Plan (PPP) and CEMP. The PPP will also contain details of the location-specific additional mitigation for relevant infrastructure and the contractor will be legally obliged to comply with the pollution control and drainage measures agreed in the PPP.

Assessment of Effects

Construction Effects

5.15 The main environmental effects are predicted to occur during construction.

5.16 The Proposed Development will make use of/upgrade 31 existing crossings and 74 new crossings; this includes small watercourse crossings mapped in the field and watercourses shown on Ordnance Survey maps.

5.17 With embedded mitigation measures, including following good practice construction and site drainage management guidance from relevant bodies, the significance of the effect on water quality is minor.

5.18 As noted above, there are no PWS sources or properties within the Site and the assessment has concluded the effects

on the two PWS identified within 1km of the site boundary will be negligible.

5.19 The effect of site clearance, felling and construction on run-off rates and flood risk is considered to be minor to negligible on watercourses and waterbodies downstream of the Proposed Development during construction.

5.20 A number of adjustments were made to the turbine and track locations to consider the presence of moderate and highly dependent GWDTEs. Where possible, a 250m buffer around GWDTEs has been applied for siting turbines and borrow pits, and a 100m buffer has been applied for siting tracks and trenches, as required by guidance. However, there are six areas where infrastructure is proposed within the recommended buffers. The effect on the GWDTEs is considered to be of negligible to minor significance during construction, however additional mitigation is proposed at some locations.

5.21 The peat assessment, PMP and peat landslide hazard risk assessment (PLHRA) conclude that, assuming embedded mitigation measures are incorporated into project design and are effective, the significance of the effect will be minor.

Operational Effects

5.22 No operational effects are predicted for geology, hydrology, hydrogeology, and peat..

Cumulative Effects

5.23 Blarghour wind farm is located within the Allt Blarghour catchment to the north of the Site and, assuming construction is undertaken in line with good practice, no cumulative effects are anticipated. There are no cumulative effects predicted during operation of the Proposed Development.

Mitigation Measures

5.24 With embedded mitigation measures incorporated into project design, no significant effects are predicted. Nevertheless, additional mitigation and SuDS (e.g. silt fences, settlement ponds) will be installed around some working areas, crossings and access tracks at sensitive locations (e.g. watercourse crossing and where the 50m buffer from watercourses could not be achieved) to reduce the risk of sediment/silt run-off to the water environment during construction.

5.25 Additional mitigation and monitoring are also proposed to minimise the potential for effects on GWDTEs.

5.26 Any excavated peat will be stored appropriately nearby and re-used as soon as possible for reinstatement or restoration and excavated peat will be reused to restore eroded areas. Mitigation of peat landslide risk will be achieved through micro-siting and/or careful construction management.

5.27 Cognisance of Scottish Water services and pipework will be required during detailed design and prior to and during construction works, particularly relating to the pipework supplying water to and from the Inveraray WTW. The Applicant will undertake detailed discussions with Scottish Water, including onsite meetings to avoid pipework and plan suitable mitigation measures to install during construction to ensure no damage to Scottish Water assets.

5.28 An Ecological Clerk of Works (ECoW) will be present onsite during construction to monitor the works and check that the mitigation measures outlined in the PPP and CEMP are adhered to.

Enhancement Measures

5.29 Additional measures to benefit peat will be implemented as part of the OREP. This includes drain blocking which will be undertaken using standard techniques by specialist contractors. A Minor positive effect is predicted on the peat resource on site as a result of the OREP measures.

Residual Effects

5.30 With embedded mitigation, additional mitigation and monitoring, the residual construction effects are either minor or negligible and not significant. A minor positive residual effect is predicted on peat as a result of implementation of peat restoration via the OREP. There are no residual operational or cumulative effects.



Image 7: Showing a view of the Eas an Amair (a tributary of the Allt Blarghour)

With the implementation of peat management and restoration measures, minor positive effects on peat are predicted as a result of the Proposed Development.



Image 8: Photomontage of the Proposed Development from Loch Avich, East of Loch Avich House (LVIA Viewpoint 11)

6. Ecology

Introduction

6.1 The ecology assessment considered the potential construction and operational effects associated with the Proposed Development on designated sites, habitats and protected species (excluding birds which are considered in the ornithology assessment), including cumulative effects.

Baseline Conditions

6.2 No statutory designated sites are located within the Site. Extents of ancient woodland are present along the existing access track, although much of this comprises commercial conifer plantation.

6.3 The surveys found that the Site supports a range of habitats of conservation concern, including priority heathland, bog and fen habitats. Potential GWDTEs were also recorded. Peatlands were recorded throughout and noted to exhibit a range of conditions; large extents of the peatland habitats were 'modified', and areas of 'actively eroding' and 'drained' peat were also recorded. Areas of 'near-natural' peatland were relatively less common.

6.4 Protected species were confirmed to be present across the site. The levels of bat activity across the Site were generally low, and there was only relatively limited evidence of otter, red squirrel and pine marten noted. Water vole were recorded in several locations, with further extents of suitable but unoccupied habitat also noted.

Embedded Mitigation

6.5 Key features of the embedded mitigation to be delivered through the CEMP include the following:

- Adherence to best practice pollution prevention and watercourse crossing design;
- Retention and protection of mature native trees wherever possible;
- Location of infrastructure on non-peat or shallower peat habitats, and less sensitive blanket bog where possible;

- Maintenance of a 50m buffer between watercourses/waterbodies and infrastructure where possible;
- Maintenance of a 50m blade clearance from areas of woodland habitats that provide commuting and foraging habitat for bats;
- Minimisation of the number of watercourse crossings;
- A Species Protection Plan (SPP) for monitoring of protected species during construction;
- Pre and post-construction fish habitat surveys; and
- Consultation with the ECoW during micro-siting of watercourse crossings to ensure protection of the water environment and sensitive ecological features.



Image 9: An example of a GWDTE habitat

Assessment of Effects

Construction Effects

6.6 The Proposed Development will result in the loss of limited extents of habitats of conservation concern during construction. Of note, is a loss of bog habitats, which was assessed to be of minor significance, given the small area of habitat loss.

6.7 Prior to mitigation, minor effects on bats are predicted via direct habitat loss and mortality as a result of the removal of trees along the existing access track that offer bat roost potential.

6.8 Construction will result in effects on water vole through habitat fragmentation, as watercourses may become impassable thereby restricting movement, and mortality through direct contact with works. These effects were assessed to be of minor significance, as they are limited to the area around the new watercourse crossings, however mitigation is proposed as detailed below.

6.9 No significant effects were predicted on otter, badger, red squirrel or pine marten during construction.

Operational Effects

6.10 Operational effects were only considered with regards to bats, and all other ecological features were scoped out.

6.11 Effects on bats are limited to mortality as a result of collision with turbines and barotrauma³. Given the relatively low levels of activity recorded across the Site, the effect was assessed to be of minor significance.

Cumulative Effects

6.12 Although there is a cumulative loss of habitats of conservation interest, particularly of bog habitats, taking into consideration the extensive restoration proposed, no significant cumulative effects on habitats are predicted.

6.13 No significant cumulative effects are predicted for protected species during construction.

6.14 Bats were the only ecological feature considered in the cumulative assessment of operational effects and effects are predicted as not significant.

Mitigation Measures

6.15 Proposed mitigation measures include the following:

- The ECoW will provide support and advice throughout construction and monitor compliance with the CEMP.
- Trees with bat roost potential will be retained where possible. Trees to be felled or limbed will be surveyed prior to construction and the licensing process will be followed if bats are found, including the provision of alternative roosting features in adjacent trees.
- Pre-construction surveys of all water-crossings for water vole and otter will be undertaken during the survey season immediately prior to construction.

- Pre-construction surveys of infrastructure within forested areas no more than six months prior to construction.
- Micro-siting of infrastructure by up to 50m will avoid any new resting sites (e.g. water vole burrows, otter resting sites, setts, dreys or dens) identified during update surveys. If unavoidable, the ECoW will make necessary protected species licence applications.
- All water-crossings will be mammal friendly, with banksides retained or mammal ledges installed.
- The SPP will include details of a bat mortality monitoring programme once operational.

Enhancement Measures

6.16 Proposed enhancement measures include the following:

- Implementation of the OREP to identify areas of peatland in poor condition where restoration will improve the wider site resource.
- Water vole monitoring.
- Boxes for pine marten and red squirrel.

Significant Residual Effects

6.17 No significant adverse residual effects have been identified. Whilst not significant, minor positive effects are predicted on habitats of national importance, including peatland, as a result of implementation of restoration and enhancement measures proposed in the OREP.



Image 10: Peatland haggging within expanses of blanket bog

With the implementation of the OREP, minor positive effects on habitats are predicted as a result of the Proposed Development.

³ Mortality in relation to barotrauma is caused by changes in air pressure around turbines, and direct collision.



Image 11: Female Merlin Perching on Post

7. Ornithology

Introduction

7.1 The potential for significant effects upon ornithological features, including qualifying interests of statutory designated sites for nature conservation and species considered sensitive to onshore wind farms, has been assessed with reference to current Chartered Institute of Ecology and Environmental Management and NatureScot guidance and in accordance with advice received from consultees.

Baseline Conditions

7.2 Baseline ornithological information was obtained from desk study and ornithological field surveys completed between 2019 and 2022. Field surveys were undertaken in accordance with NatureScot guidance.

7.3 Baseline studies recorded a narrow assemblage of moorland breeding birds including small numbers of ground-nesting waders, the presence of breeding Schedule 1 raptors and red-throated diver and lekking black grouse, within proximity to the Proposed Development.

Embedded Mitigation

7.4 The presence of golden eagle was a key consideration in the design of the Proposed Development which has sought to minimise the potential for effects on this species.

7.5 Other key features of the embedded mitigation include:

- All wild birds in the UK are protected under the provisions of the Wildlife and Countryside Act 1981 (as amended). Some species have further protection through Schedules A1 and 1A of the Act;
- The CEMP will include for a Bird Roosting and Breeding Protection Plan; and
- Habitat clearance activities within the bird breeding season would be subject to a pre-clearance survey by a competent ornithologist.

Assessment of Effects

Construction Effects

7.6 Direct habitat losses as a result of the construction of the Proposed Development was scoped out of detailed assessment, as such losses are not likely to be significant for any species.

Operational Effects

7.7 The assessment considers in detail the potential for significant operational effects upon golden eagle and white-tailed eagle and concludes that there will be no significant effects, largely as a consequence of the design of the Proposed Development which has avoided siting turbines on areas of most favoured Golden Eagle habitat.

7.8 The potential for significant effects upon other identified ornithological interests is scoped out of detailed assessment

on the basis of low levels of species activity and embedded mitigation measures included as part of the Proposed Development.

Cumulative Effects

7.9 There will be no significant cumulative effects on golden eagle or white-tailed eagle as a result of the Proposed Development in-combination with other wind farms.

Mitigation

7.10 No mitigation is required to address potentially significant effects however, mitigation to reduce the potential for adverse collision risks to white-tailed eagle is outlined which includes an Operational Carcass Monitoring and Recovery Strategy to remove livestock carcasses from within proximity to operational turbine locations.

7.11 A Breeding and Roosting Bird Protection Plan will be agreed as part of the project CEMP, in consultation with NatureScot and ABC.

Enhancement

7.12 The Proposed Development also includes proposals for an OREP which will serve to enhance and maintain suitable habitats for moorland breeding species and breeding raptors within the Site away from operational infrastructure. Measures are proposed to benefit golden eagle, moorland breeding birds, hen harrier and black grouse.

Residual Effects

7.13 The Proposed Development will not have any significant residual effect upon ornithological features.

Through careful design of the Proposed Development, no significant effects are predicted on ornithology, and a number of measures are proposed to be put in place through the OREP which will provide benefits to a number of species, including golden eagle, black grouse, hen harrier and moorland breeding bird species.



Image 12: Showing a view of the Inveraray Castle Gardens and Designed Landscape (GDL) from Dun na Cuaiche

8. Cultural Heritage

Introduction

8.1 A cultural heritage assessment has been carried out to investigate the potential physical and setting effects on cultural heritage assets during construction and operation of the Proposed Development, including cumulatively.

8.2 Cultural heritage assets are defined as a physical element of the historic environment and can be a building, monument, site, place, area or landscape identified as having cultural significance. Cultural heritage assets may have statutory or non-statutory designations, including scheduled monuments; listed buildings; conservation areas; and gardens and designated landscapes.

Baseline Conditions

8.3 Within the Site, there are two designated heritage assets. The access route to the main body of the Site extends into Inveraray Castle Garden and Design Landscape which also contains the category B listed Well House, Bealach An Fhuarain. In addition, there are 12 non-designated assets within the Site, the majority of which relate to the medieval to post-medieval practice of shieling and the management of livestock.

Embedded Mitigation

8.4 The design of the Proposed Development has sought to avoid direct effects on cultural heritage assets, and this included changes to the access to avoid potential effects on the North Cromalt Wren memorial cairn to Gertrude Canning.

8.5 Additional measures to prevent, reduce, and/or where possible offset potential physical effects to unknown archaeological remains are set out below in the mitigation section.

Assessment of Effects

Construction Effects

8.6 No significant effects have been identified during the construction phase of the Proposed Development.

Operational Effects

8.7 No significant effects have been identified during the construction phase of the Proposed Development.

Cumulative Effects

8.8 No cumulative effects are anticipated.

Mitigation

8.9 Due to the close proximity of non-designated assets to track enhancement works, the following mitigation is proposed:

- The fencing off or marking out of sites or features of cultural heritage importance in proximity to working areas. In particular, the war memorial (WoSAS 66814) located on a bend adjacent to the access track where upgrades are proposed.
- Implementation of a working protocol should unrecorded archaeological features be discovered.
- The use of toolbox talks/a CEMP to highlight the cultural heritage sensitivities of the Site to those working on the Proposed Development.
- Appointment of an Archaeological Clerk of Works (ACoW) or Historic Environment Clerk of Works (HECoW) to supervise ground-breaking operations and provide onsite advice on avoidance of effects.

Residual Effects

8.10 No residual effects anticipated.

There will be no significant effects on cultural heritage as a result of construction and operation of the Proposed Development.



Image 13: Photomontage of the Proposed Development from Cruachan Dam (LVIA Viewpoint 18)

9. Noise and Vibration

Introduction

9.1 The potential noise effects of the Proposed Development on noise-sensitive receptors has been assessed during construction and operation. Potential effects associated with vibration were considered but scoped out of detailed assessment. Cumulative impacts arising with the neighbouring proposed Blarghour Wind Farm have also been assessed.

Baseline Conditions

9.2 The Site is located in an area of relatively low population density. Baseline noise surveys were not required, however noise surveys were carried out in 2013 for development on the same site, which found that the existing noise environment at properties along Loch Awe was typically dominated by natural noise sources such as wind-disturbed vegetation and birdsong, as well as occasional coastal water movements to the west of the Site. Although the 2013 baseline noise survey was undertaken nearly 10 years ago, no significant changes to the noise climate are expected to have occurred.

Embedded Mitigation

9.3 Measures to reduce the effects of construction noise include:

- Deliveries would be limited to the hours 07:00 to 19:00 Monday to Friday and 07:00 to 13:00 on Saturdays;
- All construction activities will adhere to good practice as set out in BS 5228;
- All equipment will be maintained in good working order and any noise attenuation such as engine casing and exhaust silencers will remain fitted at all times;
- Where flexibility exists, activities will be separated from residential neighbours by the maximum possible distances;
- A site management regime will be developed to control the movement of vehicles to and from the Proposed Development; and

- Construction plant capable of generating significant noise and vibration levels will be operated in a manner to restrict the duration of the higher magnitude levels.

Assessment of Effects

Construction Effects

9.4 Construction noise, by its very nature, tends to be temporary and highly variable and therefore is less likely to cause significant adverse effects. For the majority of construction works and the construction programme, noise generated during this phase would be low. For two locations, (Croit a Bhile and South Cromalt Lodge), although higher levels are predicted during access track upgrade works, these would only occur during a brief period such that no sustained impact is experienced. It is therefore concluded that the effects of construction activities are not significant.

Operational Effects

9.5 Predicted operational noise levels have been assessed and it is concluded that operational noise levels from the Proposed Development will be within levels deemed, by national guidance, to be acceptable for wind energy schemes and therefore, not significant.

Cumulative Effects

9.6 No significant effects are predicted for cumulative noise effects during construction or operation.

Mitigation

9.7 When the access track upgrading works are taking place at the shortest distances to Croit a Bhile and South Cromalt Lodge, noise can be controlled by minimising source levels through good practice measures and use of temporary noise barriers.

9.8 Operational noise levels prior to mitigation are not significant, therefore, mitigation is not necessary. The selection of the final turbine to be installed at the Site would be made on the basis of enabling the relevant noise limits to be achieved cumulatively at the surrounding properties.

Residual Effect

9.9 Following mitigation, residual construction and operational effects would be not significant.

There will be no significant noise effects as a result of construction and operation of the Proposed Development.



Image 14: Photomontage of the Proposed Development from A886 at Strachur (LVIA Viewpoint 14)

10. Traffic and Transport

Introduction

10.1 The potential effects of the Proposed Development associated with traffic and transport during the construction of the Proposed Development have been assessed. The operational traffic associated with the Proposed Development will be minimal so operational effects of traffic on the public road network (including cumulatively) are not considered in detail.

10.2 The assessment of effects relating to traffic and transport identifies the likely volume of traffic that will be generated during construction (including cumulatively with other schemes) and the effect that this will have on the local road networks, including on sensitive receptors, compared to baseline levels of traffic volumes.

Baseline Conditions

10.3 The Proposed Development will be accessed from the A819, with all traffic approaching the Site from the A83 trunk road. A bypass of Inveraray is proposed for abnormal load traffic, due to constraints within Inveraray.

10.4 Baseline traffic information was obtained from the UK Department for Transport (DfT) and Transport Scotland (TS) databases. Accident data and a review of active travel links in the study area has also been undertaken to inform the assessment.

10.5 Loads relating to the turbine components would be delivered from the proposed Port of Entry (PoE) for the Site at Campbeltown. A blade lifting trailer will be required to overcome constraints located between Tarbert and Lochgilphead.

10.6 Two blade transfer areas will also be required to facilitate construction of the Proposed Development; however, these do not form part of this application for consent, as there is a degree of uncertainty associated with the final locations and requirements. The Applicant is committed to engaging with communities in relation to any future planning application for the blade transfer areas once there is more certainty of exact locations.

10.7 The turbine blades are to be transferred from Superwing carrier trailers to blade lifting trailers (an example of a blade lifting trailer is shown in **Image 16**). Once loaded onto the tilting trailers, the loads will proceed through Tarbert and north on the A83 to the second transfer zone located to the east of Lochgilphead. To the east of Lochgilphead, blades will be transferred from the blade lifting trailers to the scissor lift Superwing carriers.



Image 15: Showing a blade lifting trailer

Embedded Mitigation

10.8 A number of measures will be implemented to manage traffic and deliveries to the site as noted below.

Assessment of Effects

Construction Effects

10.9 The peak traffic associated with construction of the Proposed Development is predicted to occur in Month 6 of the programme. During this month, an average of 99 HGV movements is predicted per day and it is estimated that there would be a further 48 car and light van movements per day to transport construction workers to and from the Site.

10.10 The impacts relate solely to the peak of construction activities and the construction period is short lived and the effects transitory in nature.

10.11 The movement of abnormal load traffic would require temporary remedial works, including:

- Upgrade of access junction;
- Temporary removal of obstacles such as traffic lights, light columns, road signs, bollards and guardrails;
- Vegetation to be cleared or trimmed;
- Overhead utilities and obstructions to be temporarily removed and protection provided to underground utilities;
- Laying of load bearing surfaces; and
- Introducing contraflow and parking restriction measures.

10.12 The assessment of significance suggests there would be no adverse effects on traffic and transport, prior to the application of mitigation measures.

Operational Effects

10.13 As noted above, an assessment of operational effects has not been undertaken.

Cumulative Effects

10.14 The cumulative impact during construction will not be significant as there will be no road capacity issues.

Mitigation

10.15 The following measures will be implemented to mitigate any adverse effects of construction traffic during the construction phase:

- Construction Traffic Management Plan (CTMP);
- Abnormal Load Transport Management Plan (ALTMP);
- Access Management Plan (AMP); and
- A Staff Sustainable Access Plan.

Residual Effects

10.16 No significant residual effects are anticipated in respect of traffic and transport issues.

There will be no significant effects associated with traffic and transport as result of construction and operation of the Proposed Development. The Applicant is committed to implementation of a Traffic Management Plan to manage vehicle movements during busy periods and will liaise with the community as construction progresses.



Image 16: Photomontage of the Proposed Development from Core Path above Inverinan (LVIA Viewpoint 7)

11. Socio-Economics

Introduction

11.1 The socio-economic assessment has considered the potential for direct and indirect employment generation and any additional economic benefits as a result of the Proposed Development, including the commitment to a community benefit fund and to shared ownership, should this be of interest to the local community. It also considers potential effects in relation to public access, recreation, and tourism.

Baseline Conditions

11.2 Recreational shooting takes place on the Site at various times throughout the year. A number of Core Paths and regional cycle routes are located within the vicinity of the Site, clustered around the communities and settlements, particularly along the shores of the lochs, Inveraray and Dalavich. There are three Core Paths located in the area, one of which follows the Site access track; Core Path C200b (Coille Bhraghad Queens Drive Inveraray).

11.3 In addition, the Inveraray Forest Circuit runs around Inveraray and links with the access for the Proposed Development, following the Core Paths. There are a number of other published routes and Core Paths located outside the Site but within 10km.

11.4 Loch Awe and Loch Fyne are utilised by a range of recreational users and there are various hills nearby in the north and north-east, including numerous Munro hill summits, which are popular with hill walkers and other recreational users. These include Ben Lomond, Ben Ime and Beinn Bhuidhe and other hill summits located near the Site and in the Loch Lomond and the Trossachs National Park.

11.5 The top paid for visitor attraction in Argyll and the Isles in 2019 was Inveraray Castle, located approximately 5.5km to the south-east of the nearest turbine.

Overview of Effects

Construction Effects

Employment and Economic Benefits

11.6 During construction, there will be direct employment generation to the equivalent of 30.2 'person year equivalent' (PYE) in the local economy. This equates to a 'gross value added' (GVA) of £1.91 million. Indirect benefits through spend in the local economy etc. will equate to an additional 55 PYE and additional GVA of £4.03 million, stimulating the local supply chain. Adopting a conservative approach, this will be of minor (positive) significance for local employment and the economy within Argyll and Bute.

Public Access, Recreation and Tourism

11.7 Core Path C200b follows the Site access for approximately 3km and therefore a **moderate** effect is predicted for this Core Path during construction, prior to mitigation. Effects on the other Core Paths and Inveraray Forest Circuit will be minor.

11.8 The effect of construction of the Proposed Development on tourism is predicted to be negligible.

Operational Effects

Employment and Economic Benefits

11.9 Due to their remote operational control and limited need for servicing, wind farms do not create large numbers of jobs during the operational stage. There will be direct employment generation to the equivalent of 1.6 PYE in the local economy. This equates to £56,000 GVA. Indirect benefits through spend in the local economy etc. will equate to a further 2.96 PYE and additional GVA of £99,700. As such, direct and indirect employment benefits once the Proposed Development is operational will be minor.

11.10 The Applicant will contribute £5,000 per MW of installed capacity per annum into a community benefit fund. This equates to a maximum of £429,000 of income per annum, or over £17.1 million over the 40-year operational life of the

Proposed Development, subject to the eventual turbines and capacity installed. A **moderate (positive)** effect is therefore predicted in relation to direct economic benefits.

Public Access, Recreation and Tourism

11.11 Access to the Core Paths would return to baseline conditions once the Proposed Development is operational. On balance, it is not considered that the changes in views from the viewpoints and routes assessed (from which recreational users will be receptors) will result in a significant negative effect on informal recreation. The overall direct effect on public access, recreation and tourism during operation is considered to be of minor significance.

Cumulative Effects During Construction

Employment and Economic Benefits

11.12 If the Proposed Development combined with the consented schemes within the region are all constructed then a **moderate (positive)** effect is predicted for direct and indirect employment and economic conditions.

Public Access, Recreation and Tourism

11.13 No additional effects are anticipated on public access, recreation and tourism when assessed cumulatively with other schemes in the area. The effect is therefore considered to remain **moderate**, prior to mitigation.

Cumulative Effects During Operation

Employment and Economic Benefits

11.14 If the schemes within the wider area and Argyll and Bute region are constructed, then the predicted cumulative effects with existing schemes on direct economic benefits will be **moderate (positive)**.

11.15 Due to the low level of operational employment required for wind farms, a minor (positive) effect is predicted for cumulative indirect and induced employment and economic benefits.

Public Access and Recreation and Tourism

11.16 The overall cumulative operational effect on public access, recreation and tourism during operation is considered to be of minor significance.

Mitigation

11.17 Standard health and safety mitigation will be implemented during the construction period of the Proposed Development as outlined in the CTMP and CEMP. As the Site access encroaches on three Core Paths, a Site-specific

Access Management Plan (AMP) will also be prepared for use during construction to ensure that health, safety and public access is not adversely affected.

11.18 For visual receptors, mitigation was through design whereby turbines were sited to reduce visual effects as far as possible.

Residual Effects

11.19 The residual effect of the Proposed Development in relation to public access and specifically to the Core Paths/Inveraray Forest Circuit will be minor during construction and not significant following mitigation.

11.20 In relation to direct economic benefit there is a **moderate (positive)** residual effect predicted during operation of the Proposed Development and cumulatively during construction and operation of other nearby schemes.

A number of positive socio-economic effects are anticipated as a result of construction and operation of the Proposed Development, both in isolation and cumulatively with other schemes in the area. Furthermore, the Applicant is committed to contributing to a community benefit fund, equating to up to £429,000 of income per annum, or over £17.1 million over the 40-year operational life of the Proposed Development. Shared ownership is also available should this be of interest to the local community.



Image 17: Photomontage of the Proposed Development from Troisgeach (LVIA Viewpoint 25)

12. Other Issues

Introduction

12.1 The other issues assessment considers the effects of the Proposed Development on climate change mitigation (including carbon balance) and adaptation, and aviation and defence.

Climate Change Mitigation (including carbon balance) and Adaptation

Introduction

12.2 The climate change assessment has considered the potential effects of the Proposed Development on climate change mitigation (including carbon balance) and adaptation.

Baseline Conditions

12.3 The assessment considered the projected changes in temperature, precipitation and wind speed and storms by 2060-2079, when the Proposed Development will reach the end of its lifetime. The projections highlight that in 2060-2079, summer and winter temperatures are likely to be greater than the current baseline (greater for summer), with winter rainfall increasing and summer rainfall decreasing.

Construction Effects

12.4 Overall, the Proposed Development will be a net generator of greenhouse gas (GHG) emissions during construction. A Minor (negative) (and Not Significant) effect is predicted in relation to carbon emissions including direct CO₂ and NO_x emissions from HGV vehicles.

Operational Effects

12.5 Whilst it has not been possible to calculate construction traffic emissions for HGVs and personnel, overall, it is considered that these will be offset during the Proposed Development's operational life along with any backup generation if required, and that a **moderate (positive)** effect is likely on balance, in relation to carbon losses and savings.

12.6 Assuming a 40-year operational life and based on an overall expected annual carbon saving of 40,000 tCO₂e and a

total carbon loss (during both construction and operation) of just over 116,000 tCO₂e, this equates to a total saving of approximately 1.48 million tCO₂e over the Proposed Development's operational lifetime. It is calculated that the CO₂ emissions that will be emitted as part of the construction of the Proposed Development will be paid back within approximately 8 months (0.7 years). In addition, over 120,000 tonnes of CO₂e gains are estimated from the restoration of a large area of degraded bog on the Site through blocking of drains and re-wetting of peat.

12.7 The Proposed Development's carbon saving potential will contribute positively to meeting Scotland's net zero greenhouse gas emissions targets.

12.8 In terms of adaptation, further consideration was given as to whether or not the introduction of the Proposed Development is likely to affect judgements of effects and/or the ability of the receptors within or close to the Site to adapt to climate change. Predicting future outcomes is naturally difficult to predict, however in combination climate effects are not predicted to vary markedly over the Proposed Development's lifespan from the effects set out already in the EIA Report and summarised in this NTS.

Cumulative Construction Effects

12.9 Climate change is, in essence, a cumulative effect due to emissions from multiple sources including new development. All wind farms will involve the generation of direct and embodied GHG emissions during construction. It is assumed, however, that any other applications that are consented and built will include reasonable measures to avoid, reduce and /or avoid the generation of GHG emissions, particularly from construction traffic. Overall, a Minor (negative) cumulative construction effect is therefore predicted in relation to carbon emissions including direct CO₂ and NO_x emissions from HGV vehicles which is not significant.

Cumulative Operation Effects

12.10 In terms of carbon losses and offsetting, the Proposed Development, in combination with other onshore wind developments, will have a positive effect on offsetting emissions released from the burning of fossil fuels and will

play an integral part in helping Scotland meet its climate change and energy targets. A **Major (positive)** and **Significant** effect is therefore identified, given the importance of this collective role of onshore wind generation to addressing the global climate emergency.

12.11 In relation to adaptation, with respect to in-combination climate effects, this is largely a project specific consideration and effects are considered to be not significant.

Mitigation

12.12 No specific mitigation measures are proposed in relation to climate change, although a CTMP will be implemented as good practice, with the intention that measures will be implemented to ensure traffic movements are undertaken efficiently during construction, and unnecessary journeys avoided.

Residual Effects

12.13 There will be a **Moderate (positive)** effect in relation to carbon losses and carbon offsetting (climate change mitigation) during operation of the Proposed Development and a **Major (positive)** effect in relation to carbon losses and carbon offsetting (climate change mitigation) cumulatively during operation.

Aviation and Defence

Introduction

12.14 The assessment of effects on aviation and defence considered potential effects on the aviation and air defence activities of the Ministry of Defence (MOD) as safeguarded by the Defence Infrastructure Organisation (DIO). It also considered the possible effects of wind turbines upon the National Air Traffic Services En Route Ltd (NERL) communications, navigation and surveillance systems.

Baseline Conditions

12.15 The Proposed Development is located in an area relatively remote from any significant aviation facilities. It is 65km to the north-west of Glasgow Airport, 90km to the north of Glasgow Prestwick Airport and 25km to the south of the small non-radar equipped licensed aerodrome at Oban. There are no MOD aviation facilities in the area.

Overview of Effects

12.16 The turbines will not be visible to any civil or military radars or impinge upon any airport physical safeguarded surfaces.

Mitigation

12.17 The Applicant has sought to minimise the requirement for aviation lighting however aviation lighting will be required on seven of the 13 turbines for aviation safety reasons. There is no requirement for any other aviation mitigation.

Significant Residual Effects

12.18 No significant residual effects are predicted.



Image 18: Showing a view of the Site

It is calculated that the CO₂ emissions that will be emitted as part of the construction of the Proposed Development will be paid back within approximately 8 months (0.7 years). Following this period, the Proposed Development will, in effect, be in a net gain situation and will contribute to national objectives to reduce carbon emissions.



Image 19: Photomontage of the Proposed Development from Beinn Mhor (Cowal Peninsula and LLTNP) (LVIA Viewpoint 22)

13. Summary of Significant Effects

Introduction

13.1 The EIA for the Proposed Development has been carried out in accordance with regulatory requirements and guidance on good practice. The findings of the surveys undertaken, in addition to consultation, have informed the design process and assessment.

13.2 Prior to mitigation, potential significant effects have been predicted within the EIA Report in relation to:

- Landscape and Visual Amenity (including adverse effects on three LCTs, up to ten viewpoints, the settlements of Dalavich and Inverinan, the minor road and cycle route to the west of Loch Awe, a short section of the B840 near Ford, and part of the North Argyll APQ);
- Geology, Hydrology, Hydrogeology and Peat (adverse effects on GWDTEs);
- Socio-Economics (adverse effects on recreation due to the need to restrict access to a core path during construction, and positive in relation to economic benefits); and
- Climate Change (positive).

13.3 The significant adverse effects on GWDTEs and the core path will be reduced to minor through the implementation of mitigation.

13.4 Significant adverse residual effects from the Proposed Development are limited to Landscape and Visual Amenity. These effects cannot be mitigated further given the inherent nature of wind farm development, but they have been reduced to the lowest practical level via the iterative design process.

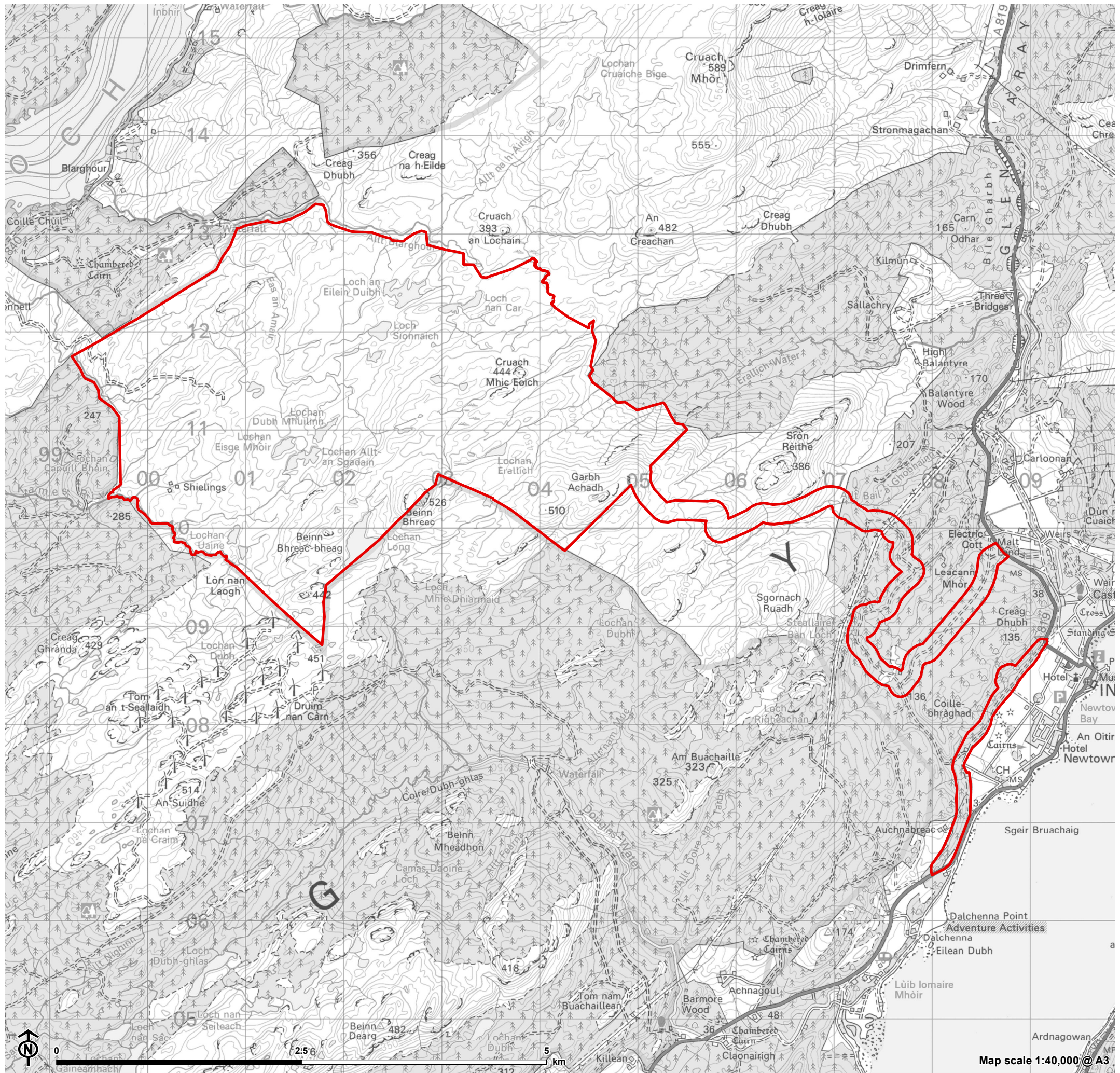
13.5 Significant residual positive effects are predicted for Socio-Economics (**moderate**) and Climate Change Mitigation and Adaptation (**moderate** effect during operation of the Proposed Development and a **major positive** effect cumulatively during operation). In addition, whilst not significant in EIA Terms, positive effects are also predicted for peat and peatland habitats as a result of implementation of the OREP.

Appendix 1: Glossary of Terms

Term	Definition
Abnormal load	Vehicles that weight more than 44,000 kg carrying a load which due to its weight, or dimensions cannot be carried on a conventional goods vehicle and requires a special vehicle and arrangements for its transport.
ALTMP	Abnormal Load Transport Management Plan. A management plan that includes all the procedures and protocols in place for abnormal loads vehicular movement from and to the Proposed Development.
AMP	Access Management Plan. A plan describing how public access rights will be managed on access tracks during construction of the Proposed Development.
Anemometer	A device that measures wind speed and direction.
APQ	Area of Panoramic Quality; a regional level landscape designation identified by Argyll and Bute Council.
Attenuation	Reduction of the force or intensity of something.
Barotrauma	Tissue damage caused by rapid or excessive pressure change. In this case, internal tissue damage in bats due to air pressure changes brought on by wind turbines.
Baseline	Original status of the environment in the area before the development work of the project is started.
CEMP	Construction Environmental Management Plan; plan outlining how construction activities will be managed on site.
CO₂	Carbon dioxide; a greenhouse gas that comes from the extraction and burning of fossil fuels (such as coal, oil, and natural gas).
Concrete batching	The process of measuring ingredients or materials to prepare concrete mix.
Consenting authority	Authority responsible for approving development proposals.
Core Paths	Paths, waterways or any other means of crossing land to facilitate, promote and manage the exercise of access rights under the Land Reform (Scotland) Act 2003.
Crane hardstanding	Ground surfaced with a hard material on which a crane is placed to erect turbines.
CTMP	Construction Traffic Management Plan. A plan which outlines traffic management measures to manage construction related traffic.
Cultural Heritage	Artefacts, monuments, a group of buildings and sites that have a diversity of values including symbolic, historic, artistic, aesthetic, ethnological or anthropological, scientific and social significance.
Decarbonisation	The process of reducing CO ₂ emissions resulting from human activity in the atmosphere.
DfT	Department for Transport; Ministerial UK department responsible for supporting, planning and investing in the UK transport network.
DIO	Defence Infrastructure Organisation; department of the UK Ministry of Defence supporting the armed forces to enable military capability by planning, building, maintaining, and servicing infrastructure.
Dreys	Nests of a tree squirrel (in the case of this report, assumed to be red squirrel).

Term	Definition
ECoW	Ecological Clerk of Works. Professional monitoring works to ensure compliance with relevant legislation, planning conditions and associated documents during construction.
Environmental Impact Assessment (EIA)	A tool used to assess the significant effects of a project or development proposal on the environment.
Geology	The study of the materials, processes, products, physical nature, and history of the Earth.
GWDEs	Groundwater Dependent Terrestrial Ecosystems. A category of wetlands, understood to be ecologically critically dependent upon groundwater.
Habitat fragmentation	Occurs when parts of a habitat are destroyed, leaving behind smaller unconnected areas.
HGV	Heavy Goods Vehicle
Hydrogeology	Study of groundwater.
Hydrology	The study of the distribution and movement of water both on and below the Earth's surface, as well as the impact of human activity on water availability and conditions.
Iterative	Doing something again and again to improve it.
Landscape designations	Landscapes which have a degree of protection from development change.
Laydown area	An area that has been cleared for the temporary storage of equipment and supplies.
LCT	Landscape Character Type. Areas of consistent and recognisable landscape character as defined in NatureScot mapping.
Lochan	Small inland loch.
LVIA	Landscape and Visual Impact Assessment. The process of evaluating the landscape and visual effects of the Proposed Development.
Metapopulation	A group of groups, that is made up of the same species.
Micro-siting	The process through which the specific location of wind turbines is determined (in this case, within 50m of the proposed infrastructure locations).
Mitigation measures	Measures to reduce, avoid or offset the potential adverse environmental effects of development activities.
MoD	Ministry of Defence.
Morphology	The study of the size, shape, and structure of animals, plants, and microorganisms and their relationships.
NO_x	Nitrogen oxide
Offsetting	In the context of climate change, a mechanism to reduce greenhouse gas (GHG) emissions in the most cost-effective and economically-efficient manner.
OREP	Outline Restoration and Enhancement Plan. Outlines proposals to which the Applicant is committed to exploring to provide mitigation and also biodiversity enhancements within the Site. Measures relate to peat, ecology, ornithology and forestry.

Term	Definition
Ornithologist	Person who studies or is an expert in birds.
Ornithology	The study of birds and everything that is related to birds.
Outcrops	Part of a rock formation that appears at the surface of the ground.
PLHRA	Peat Landslide Hazard Risk Assessment. Identifies, mitigates and management peat slide hazards and associated risks with the Proposed Development.
PMP	Peat Management Plan. Plan aimed to minimise disruption to peatland, and ensure that all further opportunities to minimise peat disturbance and extraction will be taken during design and construction of the Proposed Development.
Power Purchase Agreement (PPA)	Long-term electricity supply agreement between two parties, usually between a power producer and a customer (an electricity consumer or trader).
PPP	Pollution Prevention Plan. Plan outlining measures to prevent and/or mitigate the significant adverse effects of pollution events as a result of the activities associated with the Proposed Development.
PWS	Private Water Supply.
Receptor	A component of the natural or built environment that is affected by construction works and/or the operation of a proposed development.
Scoping opinion	A scoping opinion refers to the range of issues which the authority considers should be included in an EIA.
Sett	Den of a badger usually consisting of a network of tunnels and numerous entrances.
SPP	Species Protection Plan. Plan which details the approach to monitoring of protected species during construction.
Statutory consultees	Organisations and bodies who must be consulted on relevant planning applications.
SW	Scottish Water; statutory body that provides water and sewerage services across Scotland.
tCO₂e	Tonnes (t) of carbon dioxide (CO ₂) equivalent (e).
Tributary	Stream or river that flows into a larger stream, river or loch.
TS	Transport Scotland; the national transport agency for Scotland.
Undulating landscape	Smoothly rising and falling form of landscape.
WLA	Wild Land Area are the most extensive areas of high wildness. They are not a statutory designation.
WTW	Water Treatment Works.
ZTV	Zones of theoretical visibility is a computer-generated tool to identify the likely (or theoretical) extent of visibility of a development.



An Càrr Dubh Wind Farm
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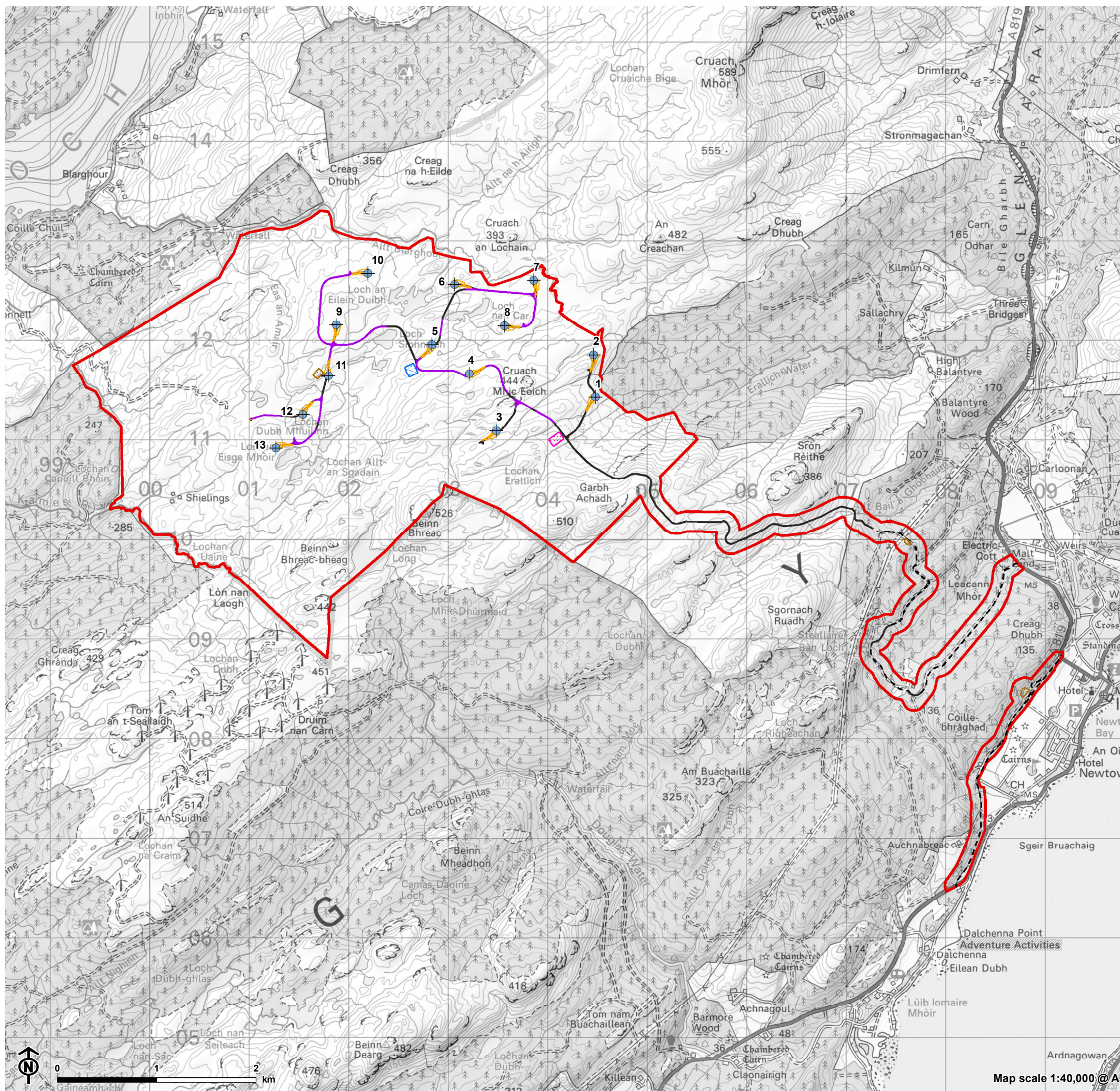


Figure 1: Site Location

 Site boundary



Figure 2: Site Layout

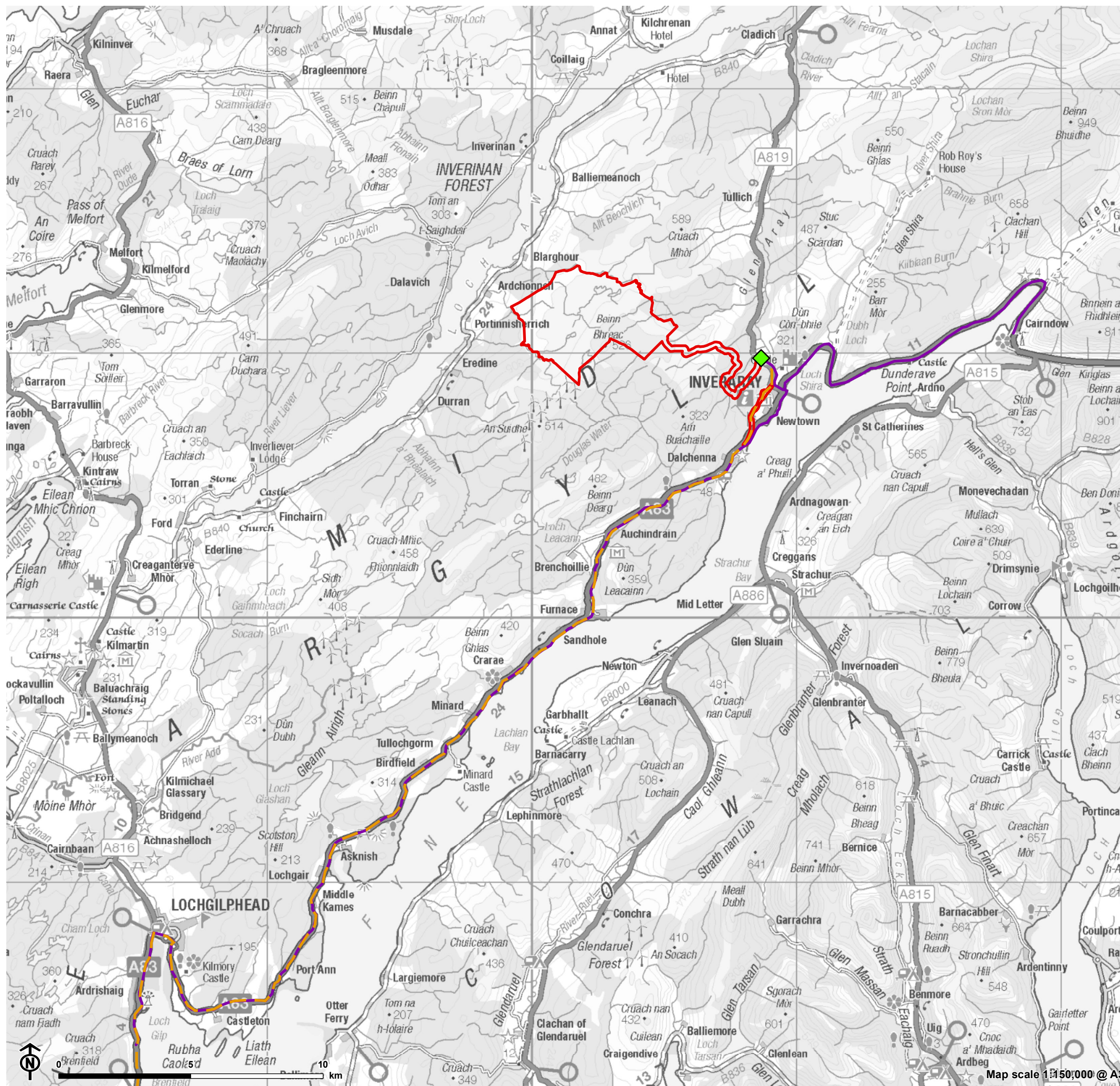


- Site boundary
- Turbine (final layout)
- Borrow pit
- Temporary construction compound
- Permanent compound including substation and BESS
- Temporary hardstanding
- Permanent hardstanding
- Permanent met mast
- Existing access track
- Proposed floating track
- Proposed cut-and-fill track



Map scale 1:40,000 @ A3

Figure 3: Abnormal Indivisible Load and Construction Vehicle Delivery Routes



- Site boundary
- Abnormal Indivisible Load (AIL) delivery route
- Construction vehicle delivery route
- ◆ Site access location