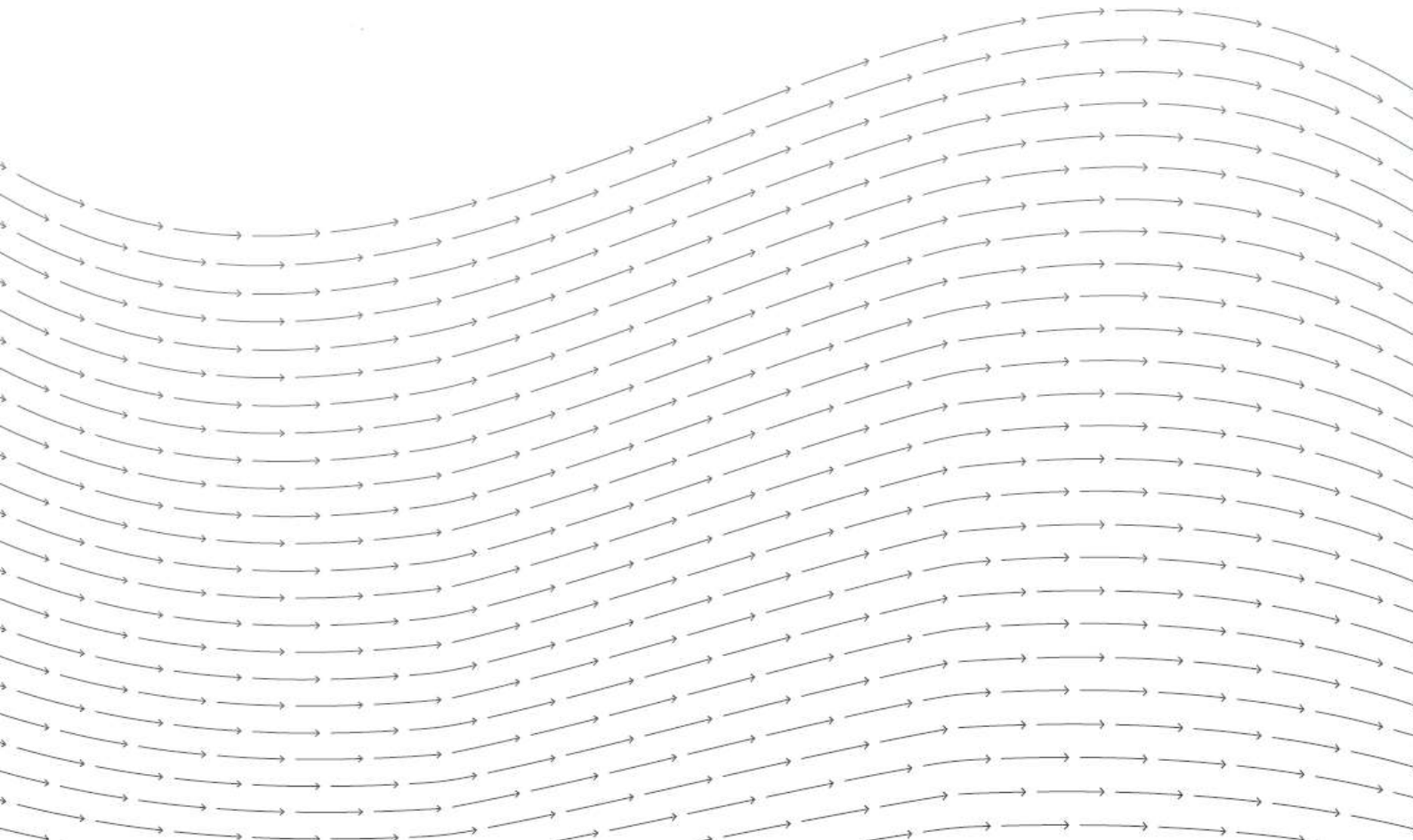


Acheilidh Wind Farm

Environmental Impact Assessment Report Non-Technical Summary

April 2024



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1 INTRODUCTION

Overview

- 1.1 This is the Non-Technical Summary (NTS) of the Environmental Impact Assessment Report (EIAR), prepared by Energiekontor UK Ltd ('the Applicant'), to accompany an application for consent to construct and operate Acheilidh Wind Farm ('the proposed development'). The site is located approximately 7.6km south-east of Lairg, and 8km west of Pittentrail¹ and lies within the boundary of The Highland Council (THC) as shown in NTS Figure 1.
- 1.2 The aim of the Non-Technical Summary (NTS) is to summarise the content and main findings of the EIA Report in a clear and concise manner to assist the public in understanding what the potential environmental effects of the Proposed Development are likely to be. The full EIAR provides a more detailed description of the proposed development and the findings of the EIA process.
- 1.3 The Applicant is proposing to construct a 12-turbine wind farm with a total indicative capacity of 79.2MW with 5MW of battery storage. As the proposed development has a generating capacity in excess of 50MW, consent is required from Scottish Ministers under Section 36 of the Electricity Act 1989 (hereafter referred to as 'the Act'), in consultation with relevant statutory consultees including THC. In addition, a request is being made by the Applicant that planning permission is deemed to be granted under Section 57(2) of the Town and Country Planning (Scotland) Act 1997, as amended.
- 1.4 The application for consent is accompanied by an EIA Report which presents the findings of the EIA undertaken in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 ('the Regulations') (as amended). The EIA Report includes a description of the proposed development, the location of the proposed development, and its design evolution; presents information on the identification and assessment of the likely significant environmental effects; and, where adverse effects are identified, measures to avoid, reduce, or remedy such effects are described.

The Applicant – Energiekontor UK Ltd

- 1.5 Energiekontor UK Ltd is a renewable energy development company, active in the UK since 1999.
- 1.6 It develops and operates small to medium-sized onshore wind and solar farms throughout the United Kingdom and Europe. At present, including the proposed development, it has 29 wind farm sites either consented or at application stage within Scotland. The company operates seven existing wind farms in the UK. Energiekontor also has several other wind energy projects at various stages of the development process throughout the UK.
- 1.7 Energiekontor UK Ltd is part of the Energiekontor Group. The parent company, Energiekontor AG, was established in 1990 in Bremerhaven in Northern Germany. It has

¹ When measured from the centre point of the Site

since grown to become one of the leading wind energy companies in Europe and is active in Germany, France, Portugal, the USA, and the UK. The company has obtained consent for and built over 120 onshore wind farms in Europe and commenced construction of the first 'no-subsidy' wind farm in the UK, Withernwick II in East Riding, Yorkshire.

Contacts for Further Information and Consultation

- 1.8 A hard copy of the full EIA report will be available for viewing during opening hours at Lairg Library. The address is:

Lairg Community Centre
The Main Street
Lairg
IV27 4DD

Opening Hours

Monday	10:00 - 14:00
Tuesday	12:00 - 15:30 and 16:00 - 19:00
Wednesday	Closed
Thursday	10:00 - 14:00
Friday	12:00 - 15:00
Saturday	Closed
Sunday	Closed

- 1.9 Electronic Versions of the full EIA Report and its associated standalone documents can be found on the Energy Consents Unit website by searching for 'Acheilidh Wind Farm.' In addition, updates including a link to the case file are provided at the following web address: <https://www.energiekontor.co.uk/our-projects/acheilidh>.
- 1.10 Alternatively, the Project Manager can be contacted for copies, as appropriate. There is no charge for provision of electronic documents or hard copies of the Non-Technical Summary on request.
- 1.11 Full printed copies of the EIAR can also be requested. Due to the size and cost of printed documents, charges for these are as follows:
- Volume 1 – Main Text: £50
 - Volume 2 - Figures: £300
 - Volume 3 – NatureScot Visualisations: £500
 - Volume 4 – Technical Appendices: £150
 - Volume 5 – THC Visualisations: £500
- 1.12 Requests should be made to Lauren Mallon, Project Manager, Energiekontor UK Ltd, lauren.mallon@energiekontor.com
- 1.13 Any representations to the application may be submitted:

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

2 EIA METHODOLOGY

2.1 EIA is a process that identifies the potential environmental impacts (both beneficial and adverse) of a proposed development and proposes mitigation to avoid, reduce and offset any potential significant adverse environmental impacts.

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

- Definition of the project to be assessed;
- Description of the 'baseline' environment (i.e. the conditions that are likely to prevail at the commencement of the project);
- Definition of the scope of the assessment;
- Scoping and consultation with interested parties;
- Optimisation of the Proposed Development based on the consultation process;
- Prediction of the likely impacts of the Proposed Development;
- Evaluation of these impacts in terms of their potential significance;
- Description of the nature and effectiveness of measures / design evolution which could be adopted in order to mitigate significant adverse impacts;
- Identification of residual impacts; and
- Submission of the EIAR and publicity.

Approach to Technical Studies Undertaken

2.3 The EIA studies commenced at an early stage in the evolution of the application proposal.

2.4 At the outset, with the objective of avoiding or minimising potential environmental impacts, the findings of these baseline environmental studies played an important role in the design evolution of the Proposed Development. These studies defined the environmental sensitivities and constraints associated with the Proposed Development, the Site, and its surroundings.

2.5 The technical EIA studies have been undertaken in accordance with relevant guidelines and procedures.

2.6 The majority of assessments involved consultations with statutory and non-statutory bodies, desk-based research, site inspections and surveys, impact prediction and input of mitigation to the design, where appropriate.

2.7 The content and conclusions of the EIAR, which includes a clear, reasoned description of any potential adverse or beneficial impacts of the Proposed Development, are based on a comprehensive assessment undertaken with all information available at the time of writing.

3 PROJECT DESCRIPTION

3.1 The proposed development (NTS Figure 2) will consist of the following primary components:

- Up to 12 turbines;
- Associated turbine compound areas including foundations and hardstanding areas for erecting cranes at each turbine location;
- On-site tracks connecting each turbine;
- An energy storage compound to store batteries with a 5MW capacity which would be within the construction compound footprint;
- Underground cables linking the turbines to the substation;
- Two watercourse crossings
- Use of up to three borrow pits to extract stone on site
- A temporary construction compound including provision for onsite concrete batching;
- On-site substation; and
- Habitat Management provisions

3.2 The proposed development would be time-limited to 35 years from the first date of commercial operation. The construction phase would last approximately eighteen months and decommissioning would last approximately six months. Planning permission is sought to permit a period of ten years between the date of the decision notice and expiry of consent.

3.3 The proposed development would provide approximately 79.2MW of installed capacity in addition to 5MW of battery storage capacity, depending on the turbine model selected. It is estimated by the Applicant that this installed capacity could generate approximately 279,731MWh of renewable electricity each year which would be expected to power the equivalent of approximately 80,800 homes on average each year², or provide 1.55 million full battery charges for electric vehicles per year³.

3.4 Turbines would be of tubular steel construction, finished in a typical off-white matt colour and comprise three blades with the final turbine choice made post-consent during the procurement phase.

3.5 Turbines would be delivered transferred by abnormal load vehicles to the Site from the Port of Nigg near Tain. The route to site is fully discussed in Chapter 12: Transport and Access.

3.6 The turbines would be interconnected using underground cables placed in trenches forming a power circuit within the site. The underground cables would be taken into the on-site substation where the electrical control equipment would interface with the local distribution network.

² Based on an average annual UK domestic electricity consumption figure of 3,462KWh as set out in the BEIS publication "Energy Consumption in the UK" December 2023.

³ Based on a large electric vehicle requiring 180kWh for a full charge.

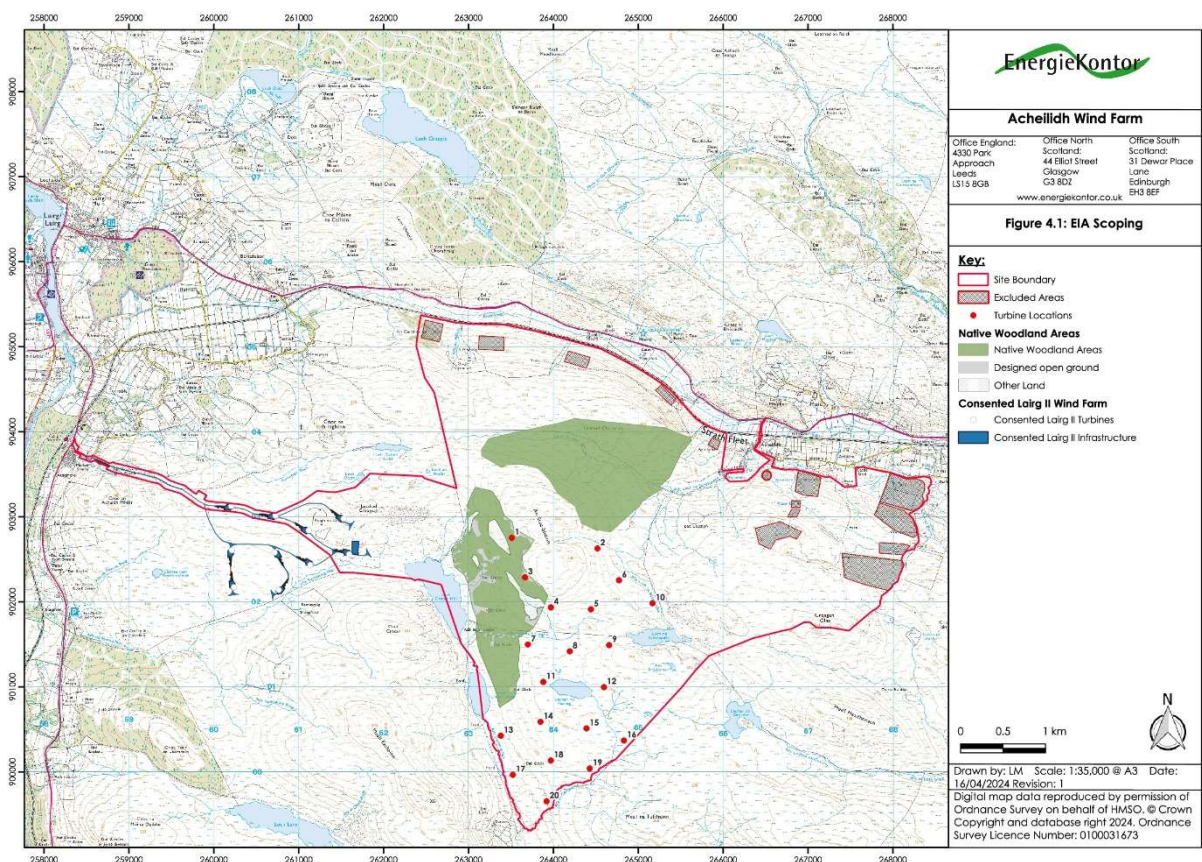
- 3.7 The proposed development will likely require a 90m x 90m, 132kV substation compound. The substation would house the switchgear and control equipment needed for grid connection.
- 3.8 Habitat Management Proposals are included within the application. This includes provisions for the restoration and enhancement of peat, an outline Deer Management Plan as well as the mitigation and enhancement of habitats for a range of bird species.

4 DESIGN EVOLUTION

- 4.1 Design evolution is an important component of wind farm design. The overall design layout principle of the proposed development has been to achieve a coherent and compact design, which minimises direct and indirect adverse effects on the local and wider landscape, while balancing commercial considerations and maximising energy production.
- 4.2 The site was subject to an initial GIS sifting exercise which set out broad constraints and provided a clear picture of those matters which should be considered in the design of the proposed development. Constraints noted as potentially relevant to the site included:
- Radio and microwave signals – using known constraints to identify areas which could be affected by existing radio and microwave signals.
 - Aviation interests – including local licensed aerodromes and visibility to radars, both military and civilian;
 - Hydrological, geological, and hydrogeological constraints – including the application of a 50m buffer applied to all watercourses located within the Site boundary and identification of Private Water Supplies (PWS);
 - Landscape designations – including National Parks, special landscape areas, and local landscape designations;
 - Ecological designations – including Ramsar sites, Special Protection Areas, Special Areas of Conservation and Sites of Special Scientific Interest;
 - Cultural heritage designations – including Gardens and Designed Landscapes, Registered Battlefields, World Heritage Sites, Listed Buildings, Properties in Care, Conservation Areas, and Scheduled Ancient Monuments;
 - Potential Grid Connection points - the capacity of the local grid network to accept the likely output from a proposed wind farm is critical to the technical feasibility of a development. The connection voltage and the distance from the wind farm can have a significant effect on the commercial feasibility of a development proposal; and
 - The pattern of settlement – with buffers provided around residential properties and settlements.
- 4.3 The design process took place over a number of months and the proposed development has been progressively revised and refined during this time. The final design of the proposed development has been produced as a result of environmental surveys, design and pre-application meetings with statutory stakeholders and the findings of the EIAR.
- 4.4 A total of five design iterations were developed, resulting in a layout which is simple in composition, restrained in size and takes into account the constraints associated with the Site. The layout iterations are set out below:

Layout 1: EIA Scoping Layout

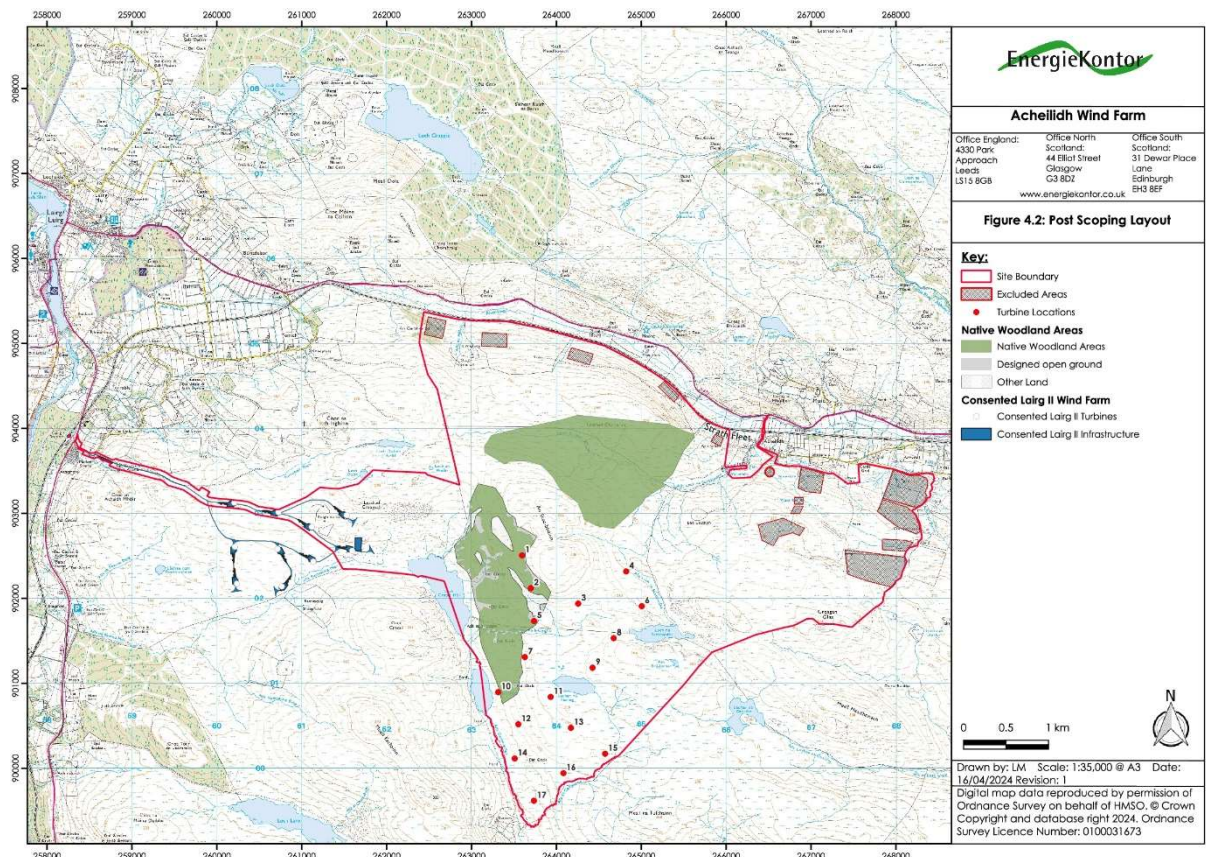
- 4.5 As shown in Figure 4.1 below, the first design iteration consisted of 20 wind turbines of up to 230m in height to blade tip. This layout was the basis for the Scoping Report submitted in June 2022 with the resultant Scoping Opinion provided by Scottish Ministers in October 2022.
- 4.6 The Scoping layout presented a theoretical maximum number of turbines which could be accommodated on site and took account of a number of environmental and technical constraints.
- 4.7 At this stage of the project, a key focus of this design was to determine landscape suitability whilst considering the initial buildability of the turbine locations.



Layout 2: Post Scoping Layout

- 4.8 The Second Design Iteration (shown in Figure 4.2) comprised 17 turbines wind turbines of up to 200m to blade tip and was presented to the local community at a community council meeting.
- 4.9 The layout maintained environmental and technical constraints. Following survey works undertaken within the site boundary, the layout was amended to avoid areas of deep peat where possible.

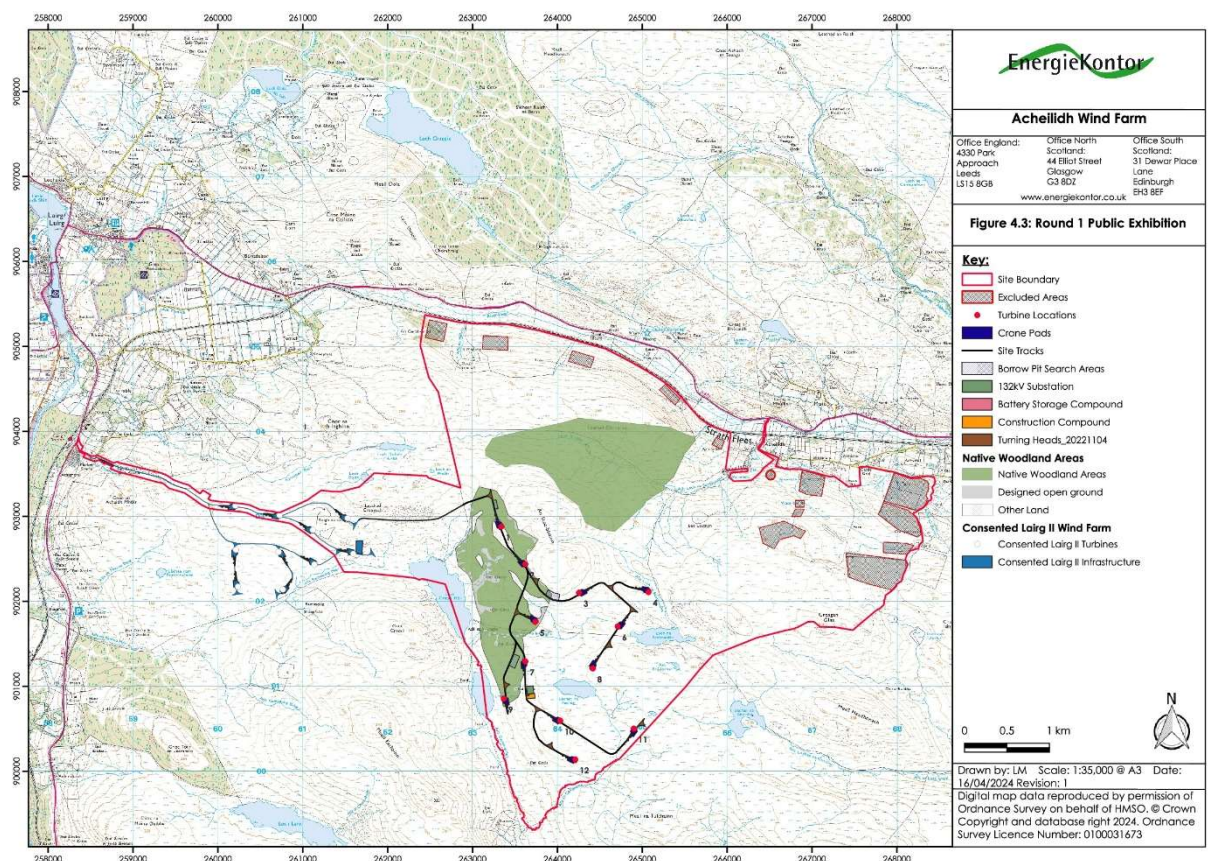
- 4.10 A total of three turbines were removed from the original design. Two turbines were deleted in order to improve visibility from key viewpoints. Another Turbine was deleted following further consideration of Phase 1 peat probing results which indicated that the surrounding peat was greater than 2m and as such was determined to be an unacceptable location for turbine placement.
- 4.11 The angle of the slopes within the site boundary were also taken into consideration for construction purposes. This also meant that turbines were placed on areas of lower elevation around the southern slopes of An-Stoc bheinn to improve visual screening.



Layout 3: Round 1 Public Exhibition Layout

- 4.12 Layout 3 (Figure 4.3) comprised 12 wind turbines of up to 230m to blade tip and was presented at the public exhibition held on the 19th of January 2023 in Rogart Hall. Layout 3 was based on the feedback received as part of the scoping process, meetings undertaken with consultees and further environmental survey with the following considerations used to inform changes to the layout:
- Peatland habitats;
 - Ecological considerations
 - Ornithological interests;
 - Landscape and visual effects

- 4.13 The deletion of turbines to the south of the Site were a result of the application of a 1.2km buffer from the abandoned Garvary Cottage to safeguard potential future visual amenity and noise levels. The removal of turbines also improved views to the south when viewed from Dornoch Firth National Scenic Area (NSA).
- 4.14 The reduction of the proposed development from 17 to 12 turbines required a review of key design viewpoints which revealed an increase to 230m could be accommodated within the receiving landscape due to the coherent design created through careful turbine placement. This increase in turbine tip height to 230m promoted an increase in energy yield for the proposed development.
- 4.15 The infrastructure design for this layout was developed at this stage. Access tracks were used to join turbine compounds. These followed contours and avoided gradients of greater than 12% in line with turbine manufacturer guidance. The infrastructure design also sought to reduce the visual impact of onsite tracks, as well as considering other constraints such as watercourses.
- 4.16 In addition to this, the infrastructure sought to connect the consented Lairg II wind farm with the proposed development to avoid the creation of new access tracks for turbine delivery and construction traffic, reducing infrastructure whilst maximising energy production. By connecting to the consented Lairg II wind farm, the proposed development will utilise an established access junction however amendments will be required.
- 4.17 The substation compound was located on relatively flat land. The main construction compound (and eventual location for battery storage) was placed on similar nearby ground.

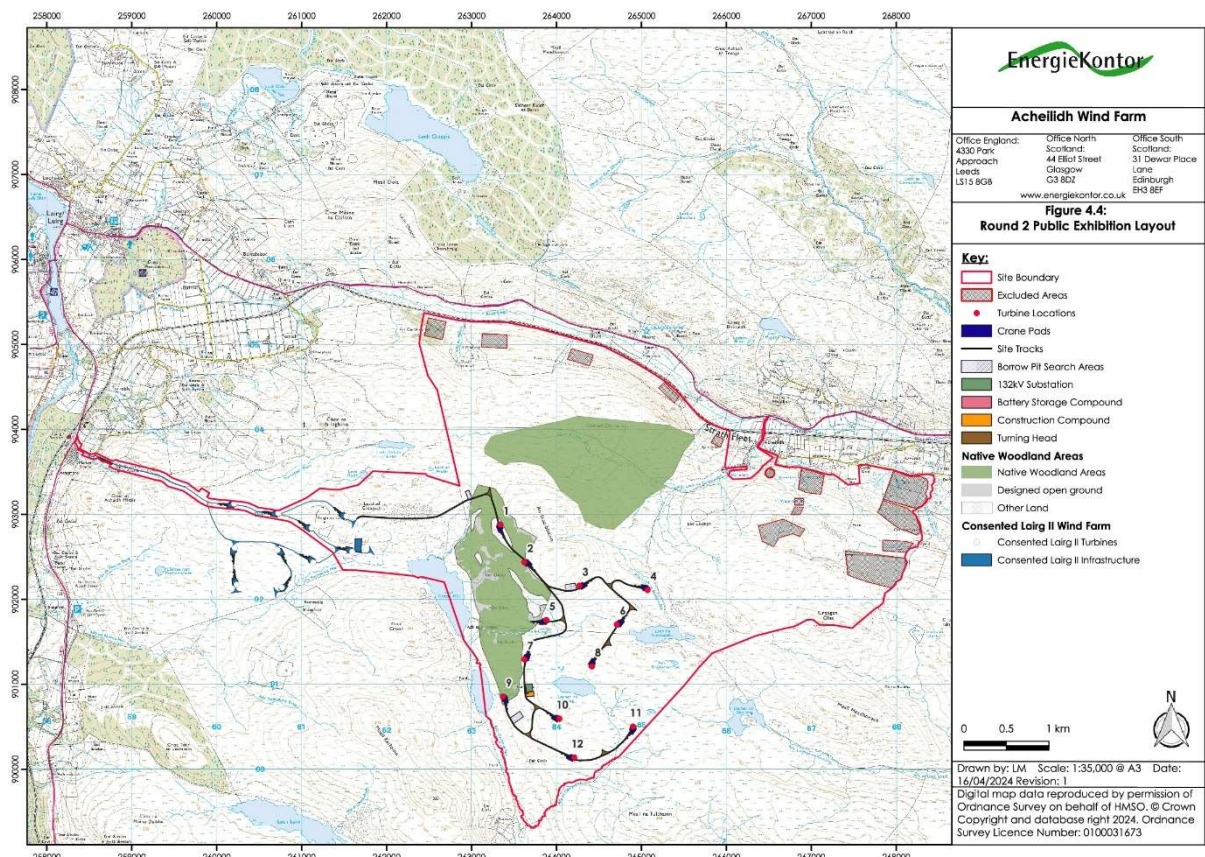


Layout 4: Round 2 Public Exhibition Layout

- 4.18 Following consultation with the tenanted crofters, a significant revision of turbine infrastructure took place to minimise impacts upon native woodland within the Site boundary, shown in Figure 4.4 below. This included the amendment of turbine locations, track realignment and the re-orientation of crane pads to reduce the amount of felling required.
- 4.19 The placement of Turbine 11, previously located in the south-east of the Site also underwent significant infrastructure amendments to avoid impacts upon peatland habitats. Furthermore, due to the identification of a number of ecological constraints in the south-east of the site, this area was deemed unacceptable for development, and this was further confirmed upon consultation during a design workshop with SEPA.
- 4.20 To avoid impacts upon deep peat, the location of T11 was moved to the south of Lochan na Folaig, with a search area produced to determine peat depth. A suitable location was found within the area of exploration and T11 was placed on peat <1m. The movement of turbines and subsequent track re-alignment also resulted in the reduction of on-site tracks, further reducing the footprint of the development.
- 4.21 Comments from the community and stakeholders coupled with further design work resulted in half of the proposed turbines being reduced to 200m with wirelines and photomontages produced to assess the visual effects from several locations. The turbines reduced in height included T1, T2, T4, T8, T9 and T12 which were considered to be the

perimeter turbines. These were lowered to reduce turbine visibility along the A839 and created a more cohesive layout with a reduced lateral spread when viewed from the Dornoch Firth NSA. The reduced tip heights for T1 and T2 led to a slight reduction in turbine visibility from Strath Fleet.

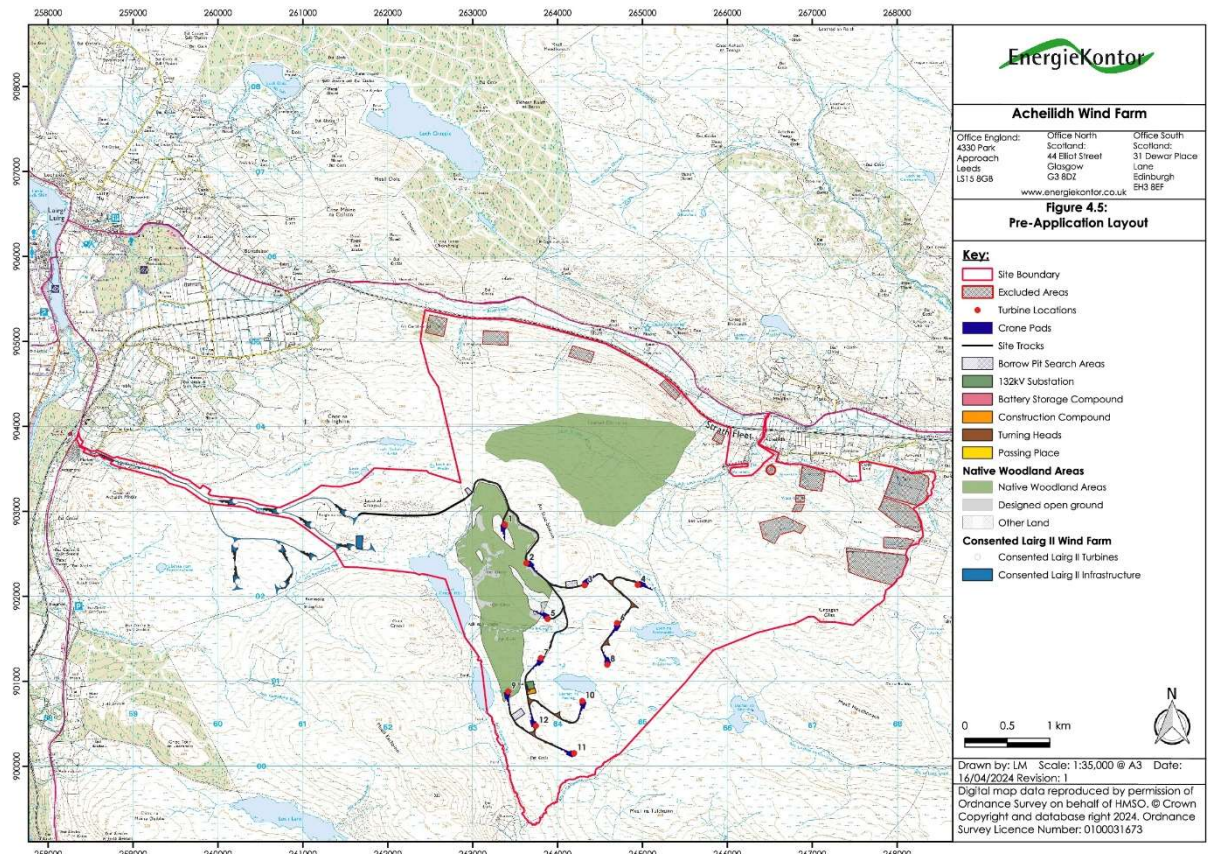
- 4.22 A decision was taken to retain heights of 230m for the remaining turbines due to some being sufficiently screened by topography and their internal position within the Site. The retention of the higher tip heights improved the overall lateral composition of the proposed development, particularly from key design viewpoints. Consideration was also given to the design of the neighbouring Garvary wind farm in order to avoid creating two distinctive design patterns in the landscape whilst respecting site-specific constraints.



Layout 5: Pre-Application Layout

- 4.23 The Revised layout (Figure 4.5 below) retains the same turbine positions as depicted in the previous layout. Following consultation with the tenanted crofters a significant revision was carried out to the on-site tracks linking to T1 and T2. Changes to infrastructure also included the re-orientation of crane hardstandings for T5 to further minimise felling of native woodland.
- 4.24 To reduce impacts upon native woodland, on-site tracks were placed outside of the native woodland area. The changes made to the proposed infrastructure reduced felling from 5.77 hectares (ha) to 1.31ha as well as reducing potential breaches within the fence line of the plantation to limit impacts associated with deer.

- 4.25 The re-routing of these tracks also resulted in the deletion of a watercourse crossing and a loaded turning head, reducing the number of watercourse crossings from four to three and further minimising the footprint of the development.



Layout 6: Application Layout

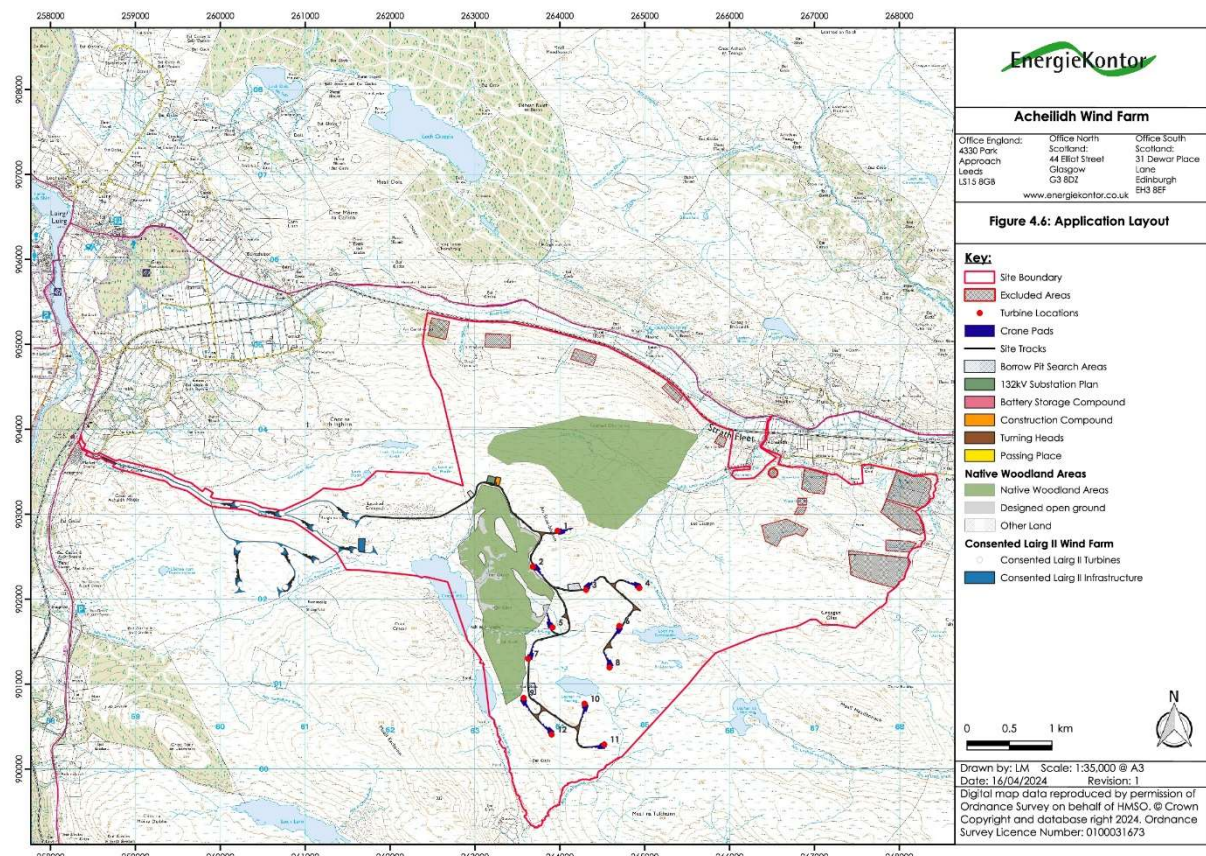
- 4.26 The Application layout, shown in which forms the basis of this EIAR represents the culmination of specialist input on LVIA, ecology, ornithology, hydrology, peat, and other matters.
- 4.27 Following the presentation of the revised layout, further feedback was provided by the tenanted crofters. As a result of the feedback provided, all turbines and infrastructure were subsequently removed from the native woodland plantation, resulting in no felling requirements associated with the proposed development. The retention of the forestry has meant that the native woodland plantation, comprising species such as Scots Pine and birch will continue to mature and remain unaffected throughout the lifetime of the project.
- 4.28 The design changes were also carefully considered from key design viewpoints and sought to maintain the design principles seen in the previous layouts. From the design changes made, when viewed from the Dornoch Firth NSA, specifically Viewpoint 12: B9176 Struie Layby presents a more compact composition with T9 being moved closer into the turbine array and, subsequently avoided being backclothed by Ben Klibreck. This was previously raised during consultation with THC and as such, the design has been amended to take this into consideration. This can also be demonstrated at Viewpoint 2, where the turbine

array has a reduced lateral spread whilst avoiding turbine stacking. Despite the changes made to the layout, the key design principles set out in the sections above have been reflected

4.29 The application layout has seen the movement of Turbines 1, 2, 3, 4, 5, 7, 9, 11 and 12 whilst the position of Turbines 6, 8 and 10 remain unchanged from the previous layout. The tip heights across the site also remain unchanged. Additional peat probing data was gathered in order to determine peat depths for the relocated turbines with turbines being placed in peat less than 1m and an NVC survey was carried out to complete the ecological data for the assessment.

4.30 The substation, temporary construction compound and battery storage have also moved to the north of the site and one of the borrow pit search areas relocated to their former position. These changes were made to reduce the distance to potential grid connection points and reduce the length of track in order to reach the construction compound. The relocated substation also falls outwith the topple distance buffer. The movement of the infrastructure has created opportunities for visual screening of the substation and energy storage compound as the trees mature over the proposed 35-year operational period. In addition, the realignment of tracks has led to a further reduction in track length to 7.22km and also has resulted in the deletion of a watercourse crossing with the proposed development now having a total of two.

4.31 As a result of turbine movement, a revised aviation lighting strategy was also agreed with the CAA with the requirement for six turbines to be lit.



Summary

- 4.32 The wind farm layout in its proposed form takes account of stakeholder feedback received during pre-application discussions as well as environmental and technical constraints identified throughout the site selection and iterative design process. In designing a layout which is simple in composition and restrained in size, the final design results in a development which takes into account the constraints associated with the site.
- 4.33 Alternatives were considered during this process and addressed as described above. The proposed development was then frozen and taken forward for Environmental Impact Assessment as is discussed within Volume 1 of the EIAR.

5 RENEWABLE ENERGY AND PLANNING POLICY

Planning Policy, Guidance and Material Considerations

- 5.1 National and local planning policies, guidance and other material considerations are considered to be relevant in underpinning the EIAR for the proposed development.
- 5.2 To maintain impartiality, the EIAR does not assess whether the proposed development would comply with the identified policies. A Planning Statement, separate from the EIA Report, assesses the compliance of the proposed development with the Development Plan and other material considerations is provided.

The Development Plan

- National Planning Framework 4 (NPF4, 2023)
- The Highland-wide Local Development Plan (2012);
- The Caithness and Sutherland Local Development Plan (CaSPlan (2018); and
- Onshore Wind Energy: Supplementary Guidance (2016) with addendum, Dec 2017).

Material Planning Considerations

- Scottish and UK Renewable energy and climate change legislation and policy.
- 5.3 Whilst the Development Plan is the starting point for the decision-making process, it must be considered in the context of both the policy hierarchy (governed by Scottish Government policy) which in turn is informed by the wider suite of Scottish, UK and international policy and law relating to renewable energy development. This includes NPF4.
- 5.4 There are also several recent policy reports, papers and strategy positions which are relevant, which can be explored within Chapter 5 of the EIA Report, or the separate Planning Statement. All policy and legislation relevant to individual environmental topics (e.g. policy and legislation regarding cultural heritage) can be found within individual subject chapters.

6 LANDSCAPE AND VISUAL

Introduction

- 6.1 The Landscape and Visual Impact Assessment (LVIA) has been undertaken in accordance with best practice guidance by chartered landscape architects at WSP. The assessment process has encompassed periods for the construction, operation, and decommissioning of the proposed development, the latter of which entails the reversal of most of the landscape and visual effects.
- 6.2 The Site is approximately 7.6km southeast of Lairg and 8km west of Pittentrail within an undesignated area of *Rounded Hills - Caithness and Sutherland* landscape character. Cumulatively, the proposed development would form part of a cluster of wind farm development comprising the existing Lairg and consented Lairg II wind farms and the Garvary application.
- 6.3 The proposed development comprises up to 12 wind turbines with six turbines (T1, T2, T4, T8, T9 and T12) up to a maximum blade tip height of up to 200m and the remaining six turbines (T3, T5, T6, T7, T10 and T11) up to a maximum blade tip height of up to 230m and associated infrastructure, including aviation warning lighting. Infrastructure associated with the proposed development includes one site entrance (via the consented Lairg II Wind Farm), internal access tracks and hardstanding areas, crane pads, up to three borrow pits, and one group of compounds comprising: the on-site substation (with underground cables linking the turbines to the substation); an energy storage compound; and an adjacent temporary construction compound.
- 6.4 The LVIA has taken account of national and local planning requirements in relation to wind farm development, as described in Chapter 5: Renewable Energy and Planning Policy, and the Planning Statement which accompanies this Section 36 Application. This includes NPF4 and the Highland-wide Local Development Plan (LDP) (2012) and Caithness and Sutherland LDP (CaSPlan) (2018).

Mitigation

- 6.5 The design of the proposed development has evolved from an iterative design and assessment process that has been guided by THC's OWESG and HwLDP and NS's *Siting and Designing Windfarms in the Landscape*. The advice from THC and NS in relation to the siting of the proposed development has led to design refinements that have responded to the local landscape character, scale, and form, to provide an improved 'landscape fit.' The proposed development has evolved from the scoping stage, through the design process which has involved a number of iterations, and collectively the following landscape mitigation was achieved:
- The initial 20 turbine layout was established by taking account of a 1.5km buffer from the nearest residential properties (increased to 2km) with the site location being removed from landscape designations.

- The layout has 'pulled back' some of the turbines from the north where they would be more visible from the A839 and Strath Fleet;
- Eight turbines were removed from the original layout and the turbine height was selected in response to the landscape scale, character and 'fit' with other wind farm development, with the turbine height of six turbines set at 230m and the remaining six turbines at 200m to blade tip;
- Special attention was paid to the visual composition of the turbines and the cumulative appearance of the proposed development alongside the Garvary application from the B9176 Struie Layby in the Dornoch Firth NSA. This has ensured the turbine composition would appear as a simple, cohesive, and ordered layout when viewed from the NSA viewpoint;
- Design consideration was also given to the cumulative design of the neighbouring wind farms including Lairg, Lairg II and Garvary which create one 'wind farm group' or cluster; and
- Design revision of turbine infrastructure was undertaken to minimise impacts upon native woodland within the Site boundary.

6.6 Within 15km, the site area and the proposed development is surrounded to the north, west and south by the valleys of Strath Fleet, Achany Glen and Strath Oykel / Kyles of Sutherland which contain most of the main visual receptors including the main roads (notably the A839 to the north and the A836 to the west and south). Taking account of the main viewpoints in these areas it should be noted that the proposed development would very often be partly screened by combinations of landform, roadside vegetation and other existing or consented wind farm development (Lairg and Lairg II) with the Garvary application contributing further to this. As a result, there are few locations where the proposed development can be seen at close range and / or without the partial screening of landform / vegetation or other wind farms.

6.7 The proposed development would generally appear as part of a wider group or cluster of wind farm development that includes the existing Lairg Wind Farm, the consented Lairg II Wind Farm and the Garvary application. Consequently, the proposed development has a reduced landscape and visual impact from most viewpoints and cumulative effects viewed from the west tend to result more from other wind farm development which appears to the fore of the proposed development. In those limited locations where the proposed development is more visible, appropriate mitigation has been employed to reduce visual effects, as in the case from Strath Fleet and the Dornoch Firth NSA.

6.8 All of the mitigation related to landscape, visual and cumulative effects is 'built-in' or embedded into the design of the proposed development and no additional mitigation or enhancement is proposed. This includes the Lighting Strategy for the aviation warning lights and works related to the site infrastructure and the proposed access road to integrate these features into their landscape setting, post construction.

Residual Landscape Effects

6.9 Landscape Effects are concerned with how the proposed development would affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape, and its distinctive character.

- 6.10 There would be a localised significant effect on the host Landscape Character Type (LCT), and the addition of the proposed development would have a limited, although significant effect on part of the *Rounded Hills – Caithness and Sutherland* LCT: South of Strath Fleet LCA, within up to approximately 2 – 3.5km of the proposed turbines. These effects would also be limited by the presence of other wind farm development notably the existing Lairg and consented Lairg II wind farms. A localised and significant cumulative effect is also predicted as a result of the combined effect of the existing Lairg and consented Lairg II wind farms and the Garvary application. A small area of the *Strath – Caithness and Sutherland* LCT: *Strath Fleet* LCA between 2km and up to 3-3.5km around Muie and Ardachu in the central western part of the LCA would also be significantly affected by the proposed development.
- 6.11 All remaining LCTs within the Study Area would not be significantly affected by the proposed development in terms of their landscape character, although there would be significant visual effects on the views from some of these areas.
- 6.12 The proposed development is not located within any designated landscapes or WLAs although there would be a significant, cumulative effect on the views from the northernmost Struie Viewpoint on the B9176: Moray Firth Tourist Route within the Dornoch Firth NSA. The proposed development includes embedded mitigation which has addressed the visual composition of the proposed turbines as seen from the Struie Viewpoint, ensuring a simple and cohesive turbine composition that would fit with the scale of the landscape as seen in the panoramic views from this location. Although there would be a localised and significant affect one of the SLQs of the NSA (SLQ 2: '*Inhabited surrounds within a wilder backdrop of hills and moors*') the assessment has concluded that there would be no significant effects on the objectives of the Dornoch Firth NSA and its overall integrity would not be compromised in landscape planning terms as set out in NPF4, Policy 4.
- 6.13 The assessment also concludes that there would be no significant effects on the Loch Fleet, Loch Brora and Glen Loth SLA or the Ben Klibreck - Armine Forest WLA.

Residual Visual Effects

- 6.14 Visual effects are concerned wholly with the effect of development on views, and the general visual amenity that would be experienced by people in the landscape.
- 6.15 The ZTV (calculated to blade tip) for the proposed development is limited, accounting for 29% of the total Study Area, reducing to 25% when considering hub height visibility. Viewpoint analysis indicates that significant visual effects are likely to affect limited locations within approximately 9.5km distance from the proposed development (subject to a clear view of the proposed turbines, landform, and vegetation screening). A further potentially significant effect has been identified as a precaution in the south at approximately 14.5km distance from the nearest turbine as illustrated by Viewpoint 12: B9176 Struie Layby.
- 6.16 Significant visual effects would be limited to the following visual receptors:

- Up to approximately 6km of the 25km section of the A839 (also Moray Firth Tourist Route) along intermittent sections between Rovie Lodge and Acheilidh for westbound users, and up to approximately 5.4km of the 12km section of the A839 (undesignated) intermittently between west of the entrance to Achany Wind Farm and the junction with the B864 for eastbound users;
 - Up to approximately 5.4km of the minor, unclassified Lochbuie Road between north of Sleastary and Loch Buidhe, and between Kinnabad and Loch an Lagain, depending on the direction of travel;
 - Much of the minor, unclassified Muie Road (north of the A839) for westbound users;
 - Much of the minor, unclassified road between East Langwell and West Langwell, depending on direction of travel;
 - Core Path SU16.03 – Ord Hill from Ord Place – from the upper slopes and summit of Ord Hill;
 - Core Path SU20.05– Free Church - Ardichoncherr – Tressady – western 1.1km section of route;
 - Core Path SU20.06 and SU20.07 – Morness - Mill - Little Rogart / Little Rogart – Morness - intermittent views for up to 0.7km / 0.2km sections of the routes;
 - Core Path SU16.08 and SU16.09 - Braemore – Achany / Gruid's Wood - up to 3.2km / 0.3km sections of the routes;
 - Scottish Hill Track 318: Aultguish Inn to Ardgay;
 - Moray Firth Tourist Route – up to 7km of the 128km route (overlapped with the A839, A836 and B9176); and
 - Summits of Struie Hill and The Ord Hill.
- 6.17 None of the remaining receptors would be significantly affected by the proposed development including any settlements. There are also no residential properties within 2km of the proposed turbines.
- 6.18 The Lighting Strategy for the aviation warning lights would result in no significant night-time effects.

7 CULTURAL HERITAGE

Introduction

- 7.1 Chapter 7 considers the potential effects of the proposed development on Cultural Heritage.

Baseline

- 7.2 The assessment has identified ten potential receptors for significant effects via changes to the setting of heritage assets (five Scheduled Monuments) within an Extended Study Area of 10km, in addition to a high potential for archaeological remains of prehistoric, medieval, and post-medieval date within the Site.

Construction Effects

- 7.3 The construction of Site infrastructure has potential to remove previously unrecorded archaeological remains within the Site but following an agreed programme of mitigation through preliminary walkover survey and/or on-site monitoring of access works and turbine installation this is not considered to result in a significant effect.

Operation Effects

- 7.4 While the proposed development would introduce a new, visible, and clearly modern visual component to views of and from the receptors assessed, none of the associated effects are considered to be more than a low magnitude of change and no significant effects are anticipated in association with changes within the setting.

Mitigation

- 7.5 The presence of heritage assets within the Site (primarily prehistoric hut circles and postmedieval farmstead remnants) identified in this study indicate a high potential for survival of similar archaeological remains within the Site. Effects on these heritage assets and potential archaeological remains during the construction phase could be effectively mitigated by an agreed programme of archaeological works prepared in consultation with Highland Council and subject to condition. The programme methodology would be set out in a written scheme of investigation (WSI) and could incorporate walkover survey and an archaeological watching brief.

Residual Effects

- 7.6 Following the implementation of mitigation measures through design and the implementation of a programme of archaeological works referenced above, no residual effects are anticipated.

8 GEOLOGY, HYDROLOGY AND PEAT

Introduction

- 8.1 The Geology, Hydrology and Hydrogeology Chapter describes the baseline conditions at the Proposed Development and the assessment methodology that has been followed to identify any likely significant effects to these receptors, whilst considering any mitigation measures that may be required to reduce and minimise any adverse effects.
- 8.2 A combination of desk study and field survey work has been undertaken to identify and characterise geological, hydrological, and hydrogeological receptors which may be subject to impacts from construction and operation of the Proposed Development.

Baseline

- 8.3 The site is shown to be underlain by metamorphic bedrock of the Altnaharra Psammite Formation. Granite intrusions are also present beneath the north-western part of the site.
- 8.4 The bedrock is overlain by Till and Moranic deposits or peat, although areas in northern and central parts of the site are reported to have little or no superficial material over bedrock. Reference to the SNH Carbon and Peatlands Map 2016, indicates that most of the site is covered by Class 2 peat, while localised areas Class 1 peat are located in south-eastern, northern, and north-eastern parts of the site.
- 8.5 Detailed peat surveys undertaken in June 2022 (Phase 1) and in January and March 2023 (Phase 2/2b) identified variable thicknesses of peat across the site, with areas of deep peat (>1.0m) limited to central and south-eastern areas of the site. Isolated areas were also recorded in northern, north-eastern, and south-eastern parts of the site.
- 8.6 A number of watercourses are located within the study area. The largest of these is Allt Garbh-airigh, which includes two surface water features, Loch Cracail Mor, and Loch Cracail Beag. This watercourse drains along the western boundary where it meets Allt an Cealgaiche in the southernmost part of the study area and continues towards Loch Buidhe approximately 2km south-east. Allt an Cealgaiche rises from Lochan na Faolaig, which is located in the centre of the southern part of the study area. Allt Ach'na h-Uaighe, drains through the centre of the study area towards Allt Garbh-airigh in the west, entering at a point situated in between Loch Cracail Mor and Loch Cracail Beag. A small unnamed tributary of Allt Ach'na h-Uaighe is shown to rise to the north of this watercourse. Allt Loch na Saobhaidhe rises from the northern bank of Loch na Saobhaidhe, which is located in the eastern part of the study area. This watercourse drains in a northerly direction towards Strath Fleet and the River Fleet located approximately 2km from the site.
- 8.7 Two new water crossings will be required, where access tracks traverse the on-site watercourses.
- 8.8 Extensive design iteration works have been undertaken to avoid siting turbines or other infrastructure on deep peat wherever possible. This has resulted in areas of deep peat

being avoided in the siting of all proposed turbine locations and the majority of access track sections. Some localised track lengths are noted to be sited on deep peat particularly in central and northern parts of the site. Care has been taken to avoid the deepest areas of peat in these areas. The requirement for peat excavation in these areas will be minimised through the construction of floating road, where required.

- 8.9 A peat slide risk assessment has identified low risks at all turbine and other infrastructure locations.

Construction Effects

- 8.10 Potential construction effects arising from the Proposed Development (in the absence of mitigation) include the following:

- Risk of pollution of watercourses from increased sediment runoff arising from excavations, exposed ground and / or the formation of temporary stockpiles. Additionally, pollutants such as oils, fuel and cement may be spilt and carried into watercourses via surface drainage.
- Changes to the groundwater flow regime as a result of excavation works required to be undertaken as part of the proposed development.
- The removal of peat to facilitate construction of the proposed development.
- Construction works and forestry felling may destabilise peat deposits and lead to slope failure, which could result in pollution / sedimentation of downslope watercourses.
- Construction works undertaken in proximity to watercourses may impact upon their banking either directly via damage to bankside material or indirectly via loosening of soil structure, which may result in impacts to water quality via erosion and or collapse.
- Unless appropriately sited and managed, there is potential for direct discharge of untreated foul sewage from welfare facilities from site compounds during construction

Operation Effects

- 8.11 Potential operational effects arising from the Proposed Development (in the absence of mitigation) include the following:

- Access tracks, crane hardstandings and unrestored areas may result in an increased rate of surface water run-off. This may increase downstream flood risk and potentially result in soil erosion and silt-laden run-off, which may pollute watercourses.
- If the design of the new and upgraded watercourse crossings do not ensure continuous water flow, there may potentially be an adverse effect on their geomorphology.

Decommissioning Effects

- 8.12 Potential effects of decommissioning the proposed development are similar to those encountered in the construction phase, however, generally with less magnitude as the level of site activity is lower.

Mitigation

- 8.13 Proposed mitigation measures to avoid or reduce potential impacts, include developing and implementing a Construction Environmental Management Plan (CEMP), undertaking pre-construction site investigations to inform micro-siting and avoid sensitive receptors where possible, surface water quality monitoring and implementing a Peat Management Plan and a Habitat Management Plan to restore peatland habitat.
- 8.14 Outline drainage design provisions and water crossing designs will be developed to ensure appropriate controlled of run-off, and continuous surface water flows. Detailed designs will be agreed with SEPA and Highland Council in advance of construction.

Overall Effects

- 8.15 Following implementation of committed mitigation measures, the significance of residual effects on geology, hydrology and peat is considered to be not significant. No cumulative effects are predicted.

9 ECOLOGY

Introduction

9.1 Surveys to ascertain the ecological baseline at Acheilidh Wind Farm comprised a desk-study and targeted ecological surveys such as:

- Phase 1 Habitat survey,
- National Vegetation Classification (NVC) survey,
- Groundwater Dependent Terrestrial Ecosystem (GWDTE) survey
- Protected terrestrial mammal survey,
- Bat surveys, and;
- A Fish habitat survey.

Baseline

9.2 The desk study and baseline surveys identified the presence of areas of deep peat, blanket bog, and wet heath and GWDTEs habitats. Evidence of the presence of otter and water vole and common reptile species was also confirmed within the baseline ecology survey area. Full spectrum bat recording across the site confirmed the site was of low sensitivity for bats.

Construction Effects

9.3 Potential effects on the ecological resource arising from construction included the loss of a small area of blanket bog as well as indirect effects such as fragmentation and potential disruption (due to changes in hydrological connectivity and resulting impacts such as secondary compression) to peatland habitats. There is also the potential for minor impacts on GWDTEs which lie within 250m of the development.

9.4 Construction effects on protected species included the potential for disturbance and mortality to otter resulting from construction activities and site clearance.

Operation Effects

9.5 Beyond the effects identified with respect to construction, no further direct loss of habitat or degradation is anticipated during the operational phase of the Proposed Development.

9.6 Indirect effects from long term changes in hydrology and fragmentation of peatlands are likely to result in changes to vegetation composition of blanket bog communities. Providing good practice measures are adhered to, no pollution or sedimentation events are likely during maintenance work.

9.7 The operation of the wind farm could result in bat mortality due to collision with turbines.

- 9.8 The bat assessment analysed the potential effects of the proposed development on bats and an overall risk assessment was carried out on high collision risk bat species (soprano and common pipistrelle) recorded within the site.
- 9.9 Overall, the site is assessed to be low risk to both species throughout the year. This effect, therefore, is considered to be a negative significant effect; significant only at a Local (site) level.

Decommissioning Effects

- 9.10 Decommissioning effects are considered to be similar to those occurring during construction, albeit likely of a lesser scale.

Mitigation

- 9.11 Design mitigation has evolved in tandem with the results of the surveys to minimise the loss of peatland habitats and maximise distances from GWDTEs and features of ecological interest.
- 9.12 An Ecological Clerk of Works (ECoW) will be appointed prior to construction to ensure compliance with best practice.
- 9.13 An Outline Habitat Management Plan (OHMP) will be developed and adopted to commit to agreed peatland restoration areas (to comply with a minimum of ten times the amount of peatland lost) and deer management.

Overall Effects

- 9.14 There are no significant residual effects predicted from either the construction or decommissioning phases of the development, either in isolation or at the cumulative level. The loss of bats through any collisions with operational turbines cannot be mitigated, but given the low value of the site for bats, this is only significant at the site level and is not considered to have any discernible effect on regional bat populations.

10 ORNITHOLOGY

Introduction

- 10.1 Baseline ornithology Surveys were completed between September 2020 and August 2022. The survey programme comprised the following: year-round Flight Activity Surveys, Breeding Diver Surveys, Black Grouse Surveys, Breeding Raptor Surveys, and a Moorland Breeding Bird Survey. The results of these surveys, together with an ornithology desk study, were used to identify those bird species and designated sites that would potentially be affected by the Proposed Development.

Baseline

- 10.2 There are four sites with a statutory designation for ornithological interest within potential connectivity to the site for depending on the ranges of the qualifying species:
- Strath Carnaig and Strath Fleet Moors (designated for hen harrier);
 - Lairg and Strathbrora Lochs (designated for black-throated diver);
 - Caithness and Sutherland Peatlands (designated for black-throated diver, common scoter, dunlin, golden eagle, golden plover, greenshank, hen harrier, merlin, red-throated diver, short-eared owl, wigeon & wood sandpiper); and
 - Dornoch and Loch Fleet (designated for osprey, bar-tailed godwit, greylag goose, wigeon and its waterfowl assemblage).
- 10.3 Baseline surveys confirmed the presence of hen harrier, golden eagle, merlin, short-eared owl, red kite, black and red-throated diver, and osprey, as well as low numbers of wader species using ornithology survey areas.
- 10.4 Species with sufficient flight activity to warrant collision modelling comprised:
- Golden plover;
 - Red-throated diver;
 - Black-throated diver;
 - Osprey;
 - Golden eagle;
 - Hen harrier;
 - Red kite; and
 - White-tailed eagle
- 10.5 Regionally important ornithological receptors within the Study Area include:
- Hen harrier;
 - Black and red-throated divers;
 - Osprey and
 - Golden eagle.

Construction Effects

- 10.6 Potential effects include habitat loss; and temporary disturbance and displacement, as well as potential mortality via the destruction of nests.
- 10.7 Construction of turbine bases and associated infrastructure will lead to direct habitat loss with the severity of potential effects dependent on the extent of land-take, the type of habitat affected and the species using the Site and surrounding area. In this case, the extent of habitat loss will be relatively small and will comprise approximately 1.6% of the habitats located within the habitat survey area.
- 10.8 Accordingly, target raptor species and wader species will lose a small amount of foraging however the amount of habitat lost to the development is negligible in relation to the overall size of suitable habitat available within or adjacent to the Site and that sufficient suitable habitat will remain. As such, no significant effects have been identified.
- 10.9 During the construction phase of the proposed development, there will also be increased levels of activity by site personnel, vehicles, and machinery, resulting in increased levels of noise and visual disturbance. This could lead to displacement or disruption of breeding, foraging and/or roosting birds. However, due to the temporary nature of these activities and mitigation through the application of appropriate ornithological buffers has meant that no significant effects were identified.

Operation Effects

- 10.10 Operational effects on birds include permanent disturbance and displacement resulting from the operational turbines and associated infrastructure; and potential collision risk with turbines.
- 10.11 From collision risk modelling conducted on the target species, no significant effects were identified given the low numbers of collisions predicted over the 35-year operational period of the proposed development.

Decommissioning Effects

- 10.12 Decommissioning effects are considered to be similar to those occurring during construction, albeit likely of a lesser scale.

Mitigation

- 10.13 Design mitigation has evolved in tandem with the results of the bird surveys to maximise the distance of wind farm infrastructure from key ornithological receptors.
- 10.14 Mitigation to avoid adverse impacts on ornithology was incorporated during the design phase, for example maximising distances from waterbodies used by diver species. No likely significant impacts on designated sites or any wider countryside bird species are predicted and so no specific mitigation is required to offset predicted likely significant impacts. Nevertheless, a Breeding Bird Protection Plan (BBPP), will be drawn up to safeguard key species and ensure legislative compliance. The BBPP will set out:

- Details of pre-construction surveys from hen harrier, divers, and general breeding birds.
- Toolbox talks on key ornithological receptors and breeding bird legislation will be given to construction staff.
- Nest sites will be identified by an Ecological Clerk of Works (ECoW) in advance of construction and species-specific exclusion zones implemented as required.

Overall Effects

- 10.15 Following full implementation of the design mitigation and the BBPP, effects of the Development on bird species and sites designated for ornithological interest will be of low to negligible magnitude and not significant.
- 10.16 There are no likely significant impact on any birds predicted either in isolation or at the cumulative level.

11 NOISE

Introduction

- 11.1 Noise can have an effect on the environment and on the quality of life enjoyed by individuals and communities. The impact of noise can, therefore, be a material consideration in the determination of planning applications.
- 11.2 The Noise Impact Assessment (NIA) considered potential noise impacts associated with the operation of the Proposed Development. An assessment of cumulative noise, from a number of nearby operational and consented projects as well as those under consideration by THC, was included.
- 11.3 The operational noise assessment took the form of a desktop assessment that also considered the potential for cumulative turbine noise impacts following the Institute of Acoustics (2013) Good Practice Guidance recommendations.

Baseline

- 11.4 Seven noise sensitive receptors were identified within the noise study area (based on a 25dB(A) L_{A90} contour), with the potential to be impacted by cumulative noise immissions.
- 11.5 A simplified 35dB(A) ETSU-R-97 limit was adopted to assess operational noise immissions from the Proposed Development. Cumulative ETSU-R-97 limits of 40dB(A) and 43dB(A), for daytime and night-time periods respectively, were adopted.
- 11.6 Noise predictions were based on the candidate turbine model Siemens Gamesa SG 6.6-155. This turbine was selected to assess the worst-case scenario for noise impacts while still aligning with the project proposal.

Construction Effects

- 11.7 The requirement for a construction noise assessment was scoped out of the NIA on the basis that construction activities are expected to be conducted within normal working hours. Due to the separation distances between the scheduled construction activities and nearest receptors (approx. 2km) it is unlikely that construction activities would give rise to significant noise impacts.

Operation Effects

- 11.8 Operational noise from the Proposed Development were assessed using propagation modelling in accordance with the IoA Good Practice Guide.
- 11.9 A predicted sound level below 35dB(A) was calculated for all assessment locations. Maximum operational sound immissions from the proposed development of 28.9dB(A) were predicted to occur at the nearest noise assessment location. Immissions from the proposed development are therefore assessed to result in a negligible level of impact.

Cumulative Noise

- 11.10 For all locations, noise impacts due to the Proposed Development were considered cumulatively with the 33 cumulative wind turbines identified within the cumulative search area enclosed by a 3km radius from the proposed development, as it is unlikely that turbines identified out with 3km would be significant to contribute to cumulative impacts at the nearest receptors
- 11.11 Total calculated cumulative immissions were shown to meet a simplified 35dB(A) ETSU-R-97 limit for both daytime and night-time periods by a minimum of 6dB.
- 11.12 The cumulative assessment demonstrated that the proposed project is expected to have either a low or negligible impact on cumulative turbine noise levels at all third-party receptors located within the study area. It is therefore concluded that the Proposed Development could be accommodated in the area without a significant impact on amenity at the surrounding receptor locations.

Decommissioning Effects

- 11.13 Decommissioning the Proposed Development would involve less plant, and plant with typically lower emissions than for construction, and would therefore have a lower impact than construction noise.

Mitigation

- 11.14 The assessment of operational immission levels from the Proposed Development assumed that the turbines would operate in their standard mode of operation using rotor blades fitted with trailing edge serration. The results demonstrated that immission levels from the proposed turbines would be able to meet a simplified 35dB(A) ETSU-R-97 noise limit at all receptors by a comfortable margin.
- 11.15 The assessment of cumulative immission also showed results that were below the simplified 35dB(A) limit.
- 11.16 Therefore, operational noise assessments considering the Proposed Development in isolation and cumulatively with third-party sites in the area, demonstrate that no mitigation is required.

Overall Effects

- 11.17 No significant effects from operational noise immission are predicted to arise either as a result of the Proposed Development in isolation or cumulatively when other developments are considered as part of the cumulative assessment.
- 11.18 It is therefore concluded that the Proposed Development would result in a negligible noise impact on surrounding receptors.

12 TRAFFIC AND TRANSPORT

Introduction

- 12.1 The transport and access elements of the site have been considered in detail in Chapter 12. This includes an assessment of the potential environmental effects associated with increased traffic generated by the Proposed Development.
- 12.2 The chapter is supported by an Abnormal Loads Assessment which is contained within Technical Appendix 12.1, Volume 4, and a draft Construction Traffic Management Plan (CTMP) which is contained within Technical Appendix 12.2, Volume 4.

Baseline

- 12.3 To determine appropriate access routes to the Site, detailed consideration and assessment of the surrounding road network has been undertaken in the form of a comprehensive desk-based study. This established that the most likely route for general construction HGV traffic travelling to the site is from the south via the A9, then A836, and the local road to Torroble, where the Site will be accessed via the consented Lairg II Wind Farm. These routes form the study area for the assessment.
- 12.4 It is expected that the turbine components would be transferred by abnormal load vehicles to the Site from the Port of Nigg near Tain, from where the abnormal loads vehicles would navigate onto the B9175 towards the A9, then continue on the A9 heading north for approximately 27km until the junction with the A839. The abnormal loads vehicles would turn left onto the A839 and continue west for approximately 23km to Lairg, then turn left onto the A836 heading south for 2.8km before turning left again onto the local road to Torroble opposite Lairg Railway Station. From here the Site is accessed via the Lairg II development

Construction Effects

- 12.5 The traffic generated by construction of the Proposed Development (over an 18-month period) will result in a temporary increase in baseline traffic levels. The potential environmental effects associated with this increase in traffic have been assessed and are anticipated to give rise to effects that are classed as minor to moderate, and which require mitigation.
- 12.6 With mitigation in place, the potential traffic and transport related environmental effects during construction are considered to be Not Significant in line with the EIA Regulations.

Operational Effects

- 12.7 During the operational phase of the Proposed Development, only a small number of vehicles will attend the Proposed Development on an infrequent basis to undertake inspections or maintenance activities. As such, no significant operational effects are anticipated, and no detailed assessment of such effects has been undertaken.

Decommissioning Effects

- 12.8 Traffic associated with the decommissioning stage is anticipated to be significantly less than that generated during construction. Given the timescales involved and the likelihood for changes to the baseline situation during this period, the traffic and transport impacts and effects of wind farm decommissioning are not assessed in this Chapter.

Mitigation

- 12.9 A Construction stage Traffic Management Plan (CTMP) will be produced for approval by the Highland Council in consultation with Police Scotland and Transport Scotland to minimise potential effects of construction traffic including any cumulative effects.
- 12.10 The final CTMP would confirm the route proposals for the abnormal load vehicles and general construction vehicles, timing of deliveries, route condition survey details and measures proposed to mitigate potential transport effects. This is likely to include measures such as temporary contractor speed limits, informative road signage and measures to minimise the movements of HGVs. The final CTMP would ensure that there is a line of communication with other wind farm developments in order that high traffic generating activities, such as stone and concrete importation, can be staggered to avoid significant cumulative effects.

Overall Effects

- 12.11 No significant residual effects from construction traffic are predicted to arise either as a result of the Proposed Development in isolation or cumulatively when other developments are considered as part of the cumulative assessment.

13 SOCIO-ECONOMICS AND TOURISM

Introduction

- 13.1 This assessment evaluates the potential effects of the Proposed Development on socio-economics, tourism, and recreation. There are no recognised standards or methodologies for assessing wind farms' socio-economic, tourism and recreation effects and as such, professional judgment has informed the approach to this assessment.
- The assessment included:
 - Desk-based studies to establish the baseline conditions of the Site;
 - Consultation with relevant statutory and non-statutory bodies;
 - An assessment of the impact of the Proposed Development on socio-economic, tourism and recreational receptors; and
 - Identification of possible measures to avoid, and mitigate against, any potential adverse effects as a result of the Proposed Development.

Baseline

- 13.2 The baseline has been established to determine the existing socio-economic characteristics of the site and its receptors, in terms of socio-economics, population, employment and tourism.
- 13.3 A higher number of the Highland's population of working age are economically active, compared to Scotland as a whole. Being a popular tourist destination, the Highlands has a higher percentage of employment in accommodation and food service industries than Scotland and England as a whole, and gross weekly pay in the Highlands is lower. Additionally, a higher number of the Highlands population works in the construction industry when compared to the regional average.

Potential Impacts

Socio-economic

- 13.4 The Proposed Development would consist of twelve wind turbines and battery storage with a generating capacity of up to 79.2MW. The Proposed Development will provide a range of positive opportunities for the local, regional, and national economies. Of particular interest are those which will benefit the Highland's local economy. It is estimated that over the duration of the construction and operational phase of the Proposed Development that:
- Up to £14.5 million could be spent within the local economy ;
 - Up to 107 jobs will be created in the Highlands across the construction and operation phases; and

- Up to £6.3 million in Local Value Added (LVA) could be contributed to the local economy.

13.5 There will be noticeable impacts on the local economy in the form of increased LVA and Gross Value Added (GVA) contributions and project spend per annum. As such, there is expected to be a minor, beneficial effect on socio-economic receptors as a result of the Proposed Development.

Tourism

- 13.6 During construction and decommissioning, some disruptions to road networks as a result of construction traffic would occur in addition to visual impacts from workers, machinery, and on-site activity. No noise impacts are anticipated during the construction and decommissioning phases. Once constructed, the main impact to tourism would be the perceived visual impact of the turbines themselves.
- 13.7 In total, three tourist receptors (including accommodation) were assessed, based on a 10km study area and none were deemed to be of high sensitivity. The Proposed Development was deemed to have a magnitude of impact that was low on all receptors during construction.

Recreation

- 13.8 Impacts to recreation would be similar to the impacts identified in relation to tourism and would include some road network disruptions and visual impacts. No noise is anticipated during construction, operational and decommissioning phases. Seven recreation receptors were assessed, six were deemed to be of medium sensitivity while one was considered low sensitivity. The magnitude of impact for all receptors was negligible/low.

Summary

- 13.9 An overall beneficial impact on the local economy is predicted as the Applicant looks to maximise the net economic impact of the Proposed Development on the local community.
- 13.10 It has been established that the Proposed Development will have an overall minor impact on tourism and recreational receptors within the Study Area, which is not significant in EIA terms.
- 13.11 The Applicant will provide a community benefit package in line with prevailing Scottish Government guidance which would be delivered during the operational phase of the proposed development. The Applicant is supportive of all potential uses of the community benefit package but recognises that it will be for local communities to decide on how to achieve the greatest benefits.

14 OTHER ISSUES

Introduction

- 14.1 This chapter considers potential effects and features which have been scoped out of the full assessment, but raise pertinent points for the proposed development.
- 14.2 Topics considered to be potentially significant and addressed in full within this chapter include summaries of:
- Aviation: including the evaluation of potential impacts upon civilian and military airspace, as well the approach taken to Aviation Lighting;
 - The potential impacts of the proposed development on telecommunications links;
 - The results of the carbon calculator exercise to understand and report on the carbon payback of the proposed development.

Aviation

- 14.3 In order to fulfil requirements from the MoD and CAA, it has been agreed that all turbines will be fitted with both infra-red and visible aviation lights.
- 14.4 Infra-red lighting is invisible to the naked eye and will not have any impact on the surrounding environment, whilst visible lighting is only operated at maximum brightness when visibility is less than 5km in all directions – such as during thick mist or heavy rain. Met Office records from Inverness suggest that maximum brightness is only required for approximately 4% of the time. In all other conditions, visible aviation lights are operated at 200 candelas, or 10% of their maximum brightness.
- 14.5 Following consultation, no impacts upon radar as a result of the proposed development is predicted.

Telecommunications

- 14.6 Telecommunication links across the site were investigated as part of the initial constraint investigations.
- 14.7 A telecommunications tower is located within the site boundary. However, given the distance between the links and the turbine envelope, it is considered that the turbines are located suitably outwith the telecoms links and therefore will not result in any effects.

Carbon Calculator

- 14.8 The assessment used the Scottish Government's Carbon Calculator for wind farms on peat to estimate the benefit of displacing conventionally generated electricity in the grid compared to the predicted emissions of carbon resulting from the construction and operation of the proposed development over its lifetime.

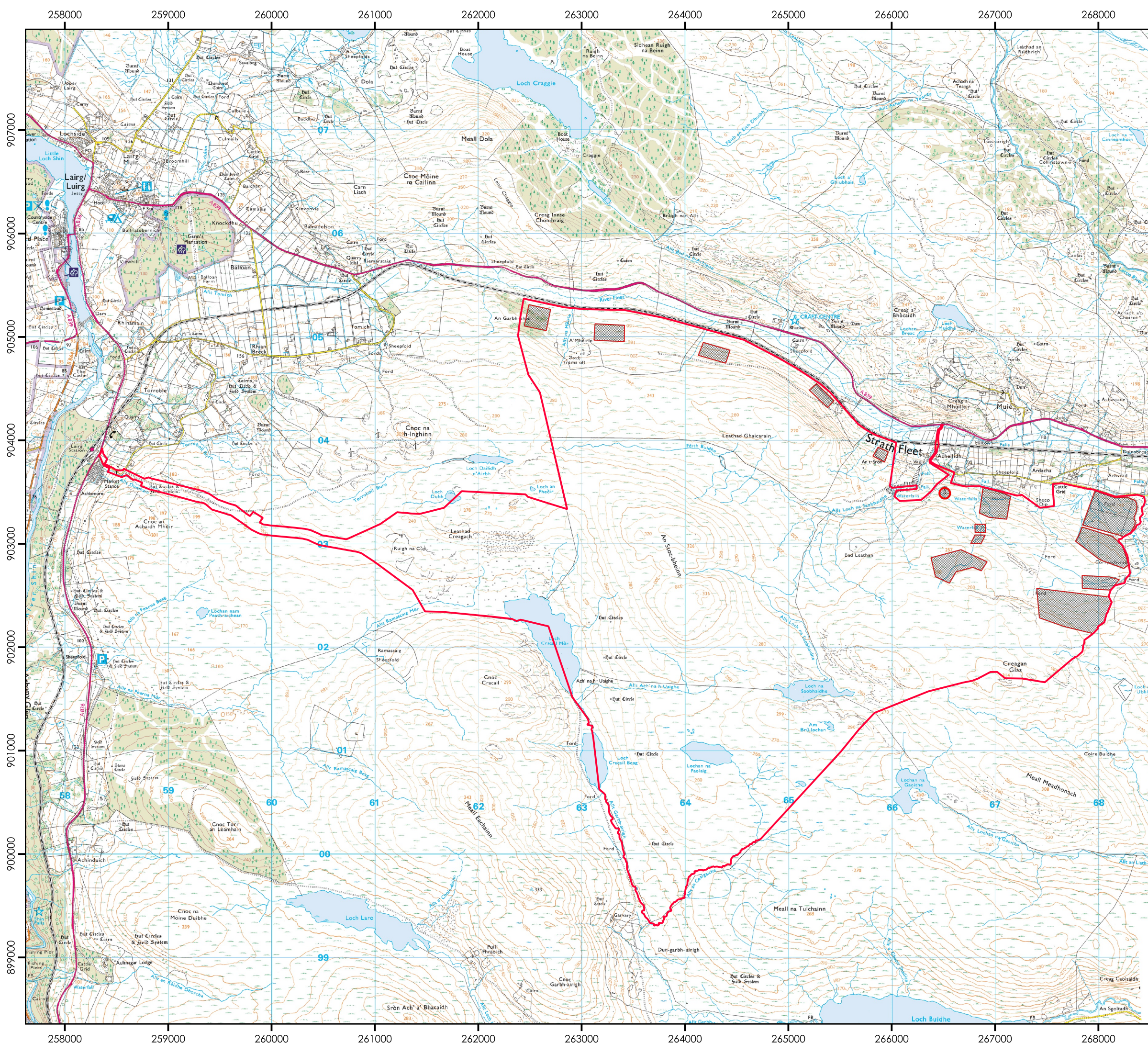
- 14.9 The results of the Carbon Calculator for the proposed development show that it is estimated to produce annual carbon savings in the region of 51,845 to 52,132 tonnes of CO₂e per year.
- 14.10 The estimated payback time of the proposed development is estimated at 2.9 years, with a minimum/maximum range of 1.9 to 3.5 years.
- 14.11 Overall, the proposed development is evaluated to have a beneficial effect on climate change mitigation.

Matters Scoped Out

- 14.12 Due to the rural location of the proposed development, the distance from sources of air pollution and the short-term, temporary nature of construction – air quality has not been considered further within the assessment.
- 14.13 Ice throw was also proposed to be scoped out of any assessment. This is due to the low risk of ice throw as a result of the remote location of the proposed development.
- 14.14 Furthermore, major accidents and disasters were scoped out of the assessment. Modern turbines are fitted with sensors which will shut down if wind speeds are too high, and a full emergency procedure plan would also be put in place to deal with emergency situations such as fires. Overall, the development is not considered vulnerable to any major accidents or disasters that could result in significant environmental effects.
- 14.15 Issues relating to shadow flicker were also scoped out of the assessment. Shadow flicker is a phenomenon where the sun passes behind the rotors of a wind turbine and casts a shadow over nearby properties. When the blades rotate, this can create a flickering effect. Due to the closest inhabited property being 2.2km from the nearest turbine, it is unlikely that significant effects would occur.

15 SUMMARY

- 15.1 This NTS has summarised the impacts and resultant effects from the proposed development.
- 15.2 The proposed development has been designed following full baseline surveys and a range of technical and stakeholder inputs, including from the public. Design has aimed to minimise effects where possible.
- 15.3 There are some significant visual effects predicted as a result of the development, which would be consistent with a scheme of this size.
- 15.4 The number of significant effects is not unusual for a wind farm development of the scale and height proposed. The overall design layout principle of the proposed development has been to achieve a coherent and compact design, which minimises direct and indirect adverse effects on the local and wider landscape, while balancing commercial considerations and maximising energy production.



Acheilidh Wind Farm

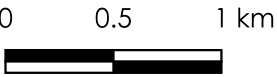
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Figure 1: Site Boundary

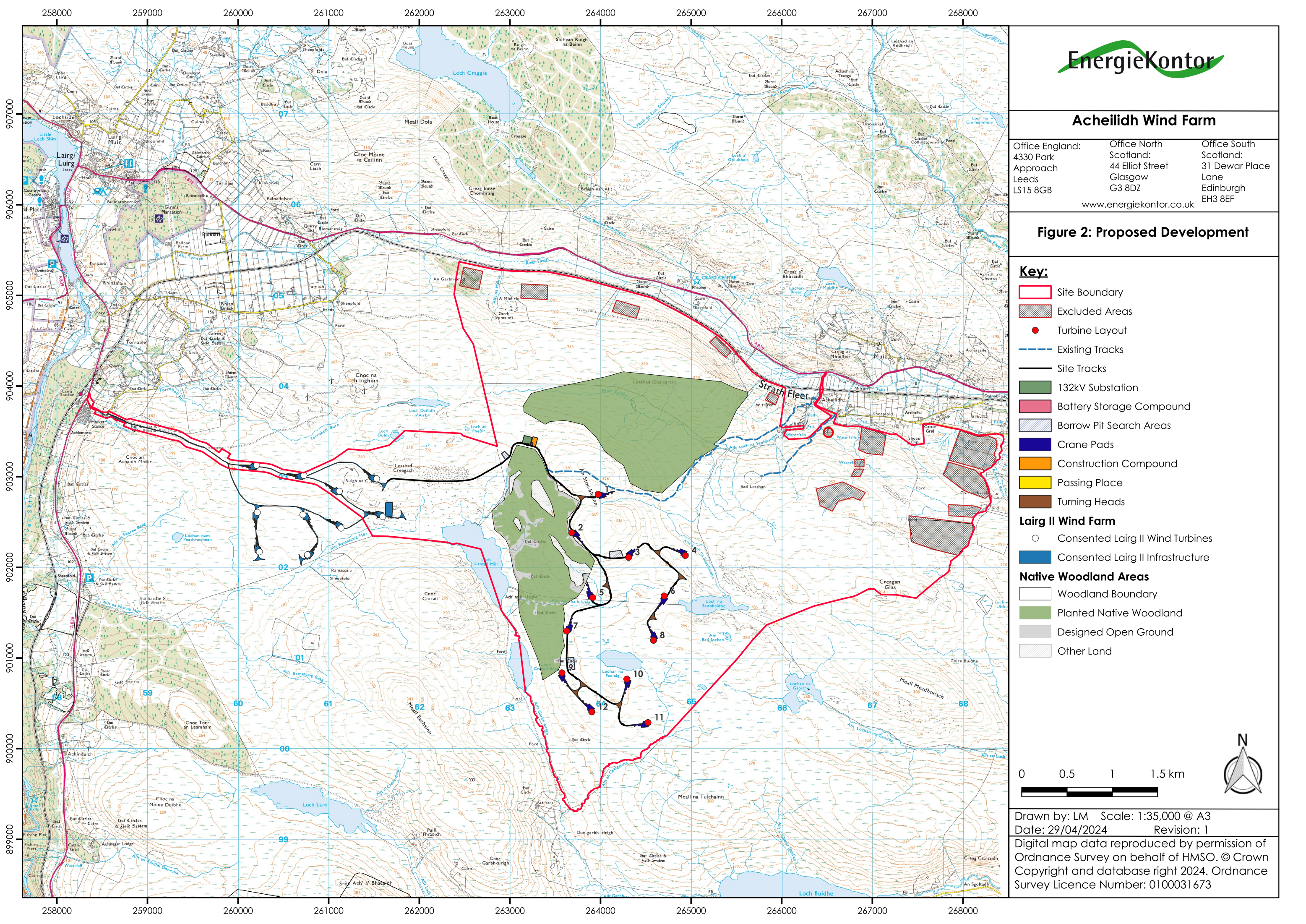
Key:

Site Boundary

Excluded Areas



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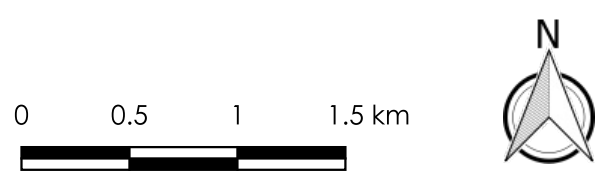
Acheilidh Wind Farm

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Figure 2: Proposed Development

- Key:**
- Site Boundary
 - Excluded Areas
 - Turbine Layout
 - Existing Tracks
 - Site Tracks
 - 132kV Substation
 - Battery Storage Compound
 - Borrow Pit Search Areas
 - Crane Pads
 - Construction Compound
 - Passing Place
 - Turning Heads
- Lairg II Wind Farm**
- Consented Lairg II Wind Turbines
 - Consented Lairg II Infrastructure
- Native Woodland Areas**
- Woodland Boundary
 - Planted Native Woodland
 - Designed Open Ground
 - Other Land



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