



Ackron Wind Farm

Environmental Impact Assessment Report

Volume 4 - EIA Report Non-Technical Summary

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PREFACE

This Non-Technical Summary (NTS) summarises the findings of the Environmental Impact Assessment Report (EIA Report) that has been undertaken on behalf of Ackron Wind Farm Ltd (the Applicant) to accompany the Town and Country Planning application for the construction and operation of the Ackron Wind Farm (the Development).

The EIA Report comprises of the following documents:

- **Volume 1** – EIA Report Text;
- **Volume 2** – EIA Report Figures;
 - **Volume 2a** – Figures excluding Landscape and Visual;
 - **Volume 2b** – Landscape and Visual Plan Figures;
 - **Volume 2c** – NatureScot Visualisations;
 - **Volume 2d** – THC Visualisations;
- **Volume 3** – EIA Report Technical Appendices; and
- **Volume 4** – EIA Report Non-Technical Summary.

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

The EIA Report is publicised in accordance with Part 5 of the EIA Regulations and the Town and Country Planning (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020¹ (the Coronavirus Regulations).

Part 5 of the EIA Regulations requires the EIA Report to be available for public viewing; however, as a result of the ongoing COVID-19 pandemic, this would not be in line with current public health guidance from the Scottish Government. Consequently, the Coronavirus Regulations introduces a temporary relaxation of Part 5 of the EIA Regulations during the emergency period; the amended regulations therefore require that the Applicant must:

"state that the EIA report is available for inspection free of charge and the means by which, the EIA report is available for inspection".

The EIA Report and supporting documentation can be accessed on the Ackron Wind Farm project website at www.ackron-windfarm.co.uk or at www.highland.gov.uk/.

Hard copies of The Non-Technical Summary (NTS) can be made available free of charge from the Applicant. Hard copies of the application submission may be obtained for £1,643 or on USB for £20 to cover production cost, plus postage and packaging.

Requests for copy of the application submission can be made:

By email: ukprojects@statkraft.com

By post: Freepost Statkraft

By phone: 0800 772 0668

¹ The Town and Country Planning (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020. Available at <https://www.legislation.gov.uk/ssi/2020/124/contents/made>

Any representations to the application should be made by completing the online representation form on the Council Planning Portal or by:

- email to: eplanning@highland.gov.uk
- post to:

eProcessing Centre
Highland Council Headquarters,
Glenurquhart Road,
Inverness
IV3 5NX

Representations should be dated and should clearly state the name (in block capitals) and full return email or postal address of those making representation. All representations to the Council will be published online along with the name of those making representation.

As noted above, no physical copies are available for public viewing at the point of submission due to the EIA Regulations and the Coronavirus Regulations. However, should this change during the consultation period, then public copies will be made available at locations that will be published on the project website www.ackron-windfarm.co.uk.

1 INTRODUCTION

This Non-Technical Summary (NTS) is a summary of the Environmental Impact Assessment (EIA) Report which accompanies the Planning Application (the Application) under the Town and Country Planning (Scotland) Act 1997² (as amended by the Planning etc. (Scotland) Act 2006³) to install and operate a wind farm comprising up to 12 turbines, with a generation capacity of up to 49.9 (MW), and associated infrastructure (the Development). The Development is located in north-eastern Sutherland, in the administrative boundary of the Highland Council (the Site) and would be operational for a period of 30 years. The project is known as the Ackron Wind Farm.

This NTS is intended to be read alongside the Application, EIA Report, and associated application documents for the Development.

1.1 The Applicant

Ackron Wind Farm Ltd is a wholly owned subsidiary of Statkraft UK Ltd. Statkraft is a leading company in hydropower internationally and Europe's largest generator of renewable energy, producing hydropower, wind power, solar power, gas-fired power, and supplies district heating. Statkraft owns and operates 11 wind farms in the UK and the Nordics with a combined installed capacity of almost 1,000 MW.

1.2 Site Context

The Site which contains the Development covers an area of approximately 662 hectares (ha). The Site is located approximately 18 kilometres (km) west of Thurso and approximately 2 km south-east of Melvich in Sutherland, and is centred on National Grid Reference (NGR) 291200, 962150 as shown on Figure 1.1.

The topography of the Site and immediate vicinity generally slopes westward, as shown on Figure 1.2. The elevation of the Site varies from approximately 163 metres (m) Above Ordnance Datum (AOD) in the east near Caol-Loch, sloping westward to 30 m AOD along the A897. There are two named knolls: Golval Hill (127 m AOD) and Cnoc an Achadh (123 m AOD).

The Site predominately comprises of open moorland used for rough grazing; there is a small area of improved pasture in the north-west and a woodland grant scheme (WGS3) along the lower elevations in the west of the Site with woodland planted in 2013 in portions of the Site as part of the Scottish Rural Development Programme.

The Site lies within the Halladale River catchment with Giligill Burn, Akran Burn, and an unnamed watercourse flowing from south-east to north-west through Site.

No public roads are located within the Site. The A836, part of the 'North Coast 500' route, lies to the north of the Site with the A897 adjacent to the western boundary. An overhead transmission line transects the south-east corner of the Site connecting Connagill Substation in the south-west, to Dounreay in the north-east.

There are no residential properties within the Site with the closest residential properties being Ackron Farm and Golval (both financially involved with the Development), located 0.9 km west and 1 km south-west of the nearest turbine, respectively.

The Caithness and Sutherland Peatlands covers large portions of Caithness and Sutherland, with an area located adjacent to the east of the Site designated as a Special Area of

² Scottish Government (1997) the Town and Country Planning (Scotland) Act 1997 [Online] Available at: <http://www.legislation.gov.uk/ukpga/1997/8/contents> (Accessed 15/12/19)

³ Scottish Government (2006) Planning etc. (Scotland) Act 2006 [Online] Available at: <http://www.legislation.gov.uk/asp/2006/17/contents> (Accessed 15/12/19)

Conservation (SAC)⁴, Ramsar site⁵ and Special Protection Area (SPA)⁶ for its ecological and ornithological interest. It is recognised as being of international importance for its wetland/peatland habitats, breeding bird populations, and other species these habitats support. The Caithness and Sutherland Peatlands also includes 39 Sites of Special Scientific Interest (SSSI), the closest of which is East Halladale⁷, which lies adjacent to the eastern boundary.

⁴ Joint Nature Conservation Committee (2016). Natura 2000 – Standard Data Form: Site UK0013602, Caithness and Sutherland Peatlands SAC. Available online at: <https://sitelink.nature.scot/site/8218> (Accessed 30/04/2020)

⁵ Joint Nature Conservation Committee (2005). Information Sheet on Ramsar Wetlands (RIS): Site UK13003, Caithness and Sutherland Peatlands. Available online at: <https://sitelink.nature.scot/site/8412> (Accessed 30/04/2020)

⁶ Joint Nature Conservation Committee (2018). Natura 2000 – Standard Data Form: Site UK9001151, Caithness and Sutherland Peatlands SPA. Available online at: <https://sitelink.nature.scot/site/8476> (Accessed 30/04/2020)

⁷ SNH (n.d.) Citation: East Halladale SSSI. Available online at: <https://sitelink.nature.scot/site/585> (Accessed 30/04/2020)

2 ENERGY AND PLANNING POLICY

The principal planning statute in Scotland applicable to the planning application for the Development is the Town and Country Planning (Scotland) Act 1997⁸ (“the 1997 Act”), as amended by the Planning etc. (Scotland) Act 2006⁹. The Planning Authority for the Development is The Highland Council (the Council).

Energy policy has been referenced in the EIA Report. The Development relates to the generation of electricity from renewable energy sources and comes as a direct response to national planning and energy policy objectives. Furthermore, it is explained that the Development would make a contribution to the attainment of emissions reduction, renewable energy and electricity targets at both the Scottish and UK levels. Detailed reference to the renewable energy policy context is provided in the Planning Statement.

National planning policy and guidance has been reviewed as part of the EIA process including the National Planning Framework, Scottish Planning Policy and relevant Circulars and Planning Advice Notes.

The statutory Development Plan relevant to the Development comprises the following:

- The Highland Wide Local Development Plan¹⁰ (HwLDP) (2012);
- The Caithness and Sutherland Local Development Plan¹¹ (CaSPlan) adopted 2018); and
- Relevant supplementary guidance, particularly the Onshore Wind Energy Supplementary Guidance (2016)¹².

Consideration has been given to the relevant policies contained within the Development Plan during the design of the Development. The policies most relevant to the Development relate to renewable energy developments and provide guidance on the main issues the Council will consider when making a decision to grant consent.

⁸ Scottish Government (1997). Town and Country Planning (Scotland) Act 1997. [Online] Available at: <https://www.legislation.gov.uk/ukpga/1997/8/contents> (Accessed 07/08/20).

⁹ UK Government (2006). Planning etc. (Scotland) Act 2006. [Online] Available at: <http://www.legislation.gov.uk/asp/2006/17/contents> (Accessed 07/08/20).

¹⁰ The Highland Council. (2012) Caithness and Sutherland Local Development Plan (CaSPlan). [Online]. Available at: https://www.highland.gov.uk/info/178/local_and_statutory_development_plans/283/caithness_and_sutherland_local_development_plan (Accessed 04/09/2020).

¹¹ The Highland Council (2018). Inner Moray Firth Local Development Plan [Online]. Available at: https://www.highland.gov.uk/downloads/file/15008/adopted_inner_moray_firth_local_development_plan (Accessed 04/09/2020).

¹² The Highland Council (2016) Onshore Wind Energy: Supplementary Guidance [Online] Available at: https://www.highland.gov.uk/downloads/file/18793/onshore_wind_energy_supplementary_guidance_november_2016 (Accessed 10/04/20)

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3 SITE SELECTION & DESIGN EVOLUTION

As part of an ongoing UK wide search, the Development was identified by the Applicant as having potential to be progressed to the more detailed design stage. Further high-level investigations and willing landowners resulted in the Site being advanced to the initial feasibility and survey phase. The Site was selected to be progressed for the following reasons:

- A sufficiently high annual mean wind speed across the Site;
- Viable grid connection in close proximity to the Site;
- Suitable port of delivery and road access for delivery of large components;
- Limited populated areas and transport routes within the zone of theoretical visibility;
- The Site is sufficiently distant from the nearest residential properties to ensure compliance with ETSU-R-97 noise limits, as well as to reduce adverse residential visual amenity and shadow flicker effects;
- The Site itself supports no international or national ecological, landscape or cultural heritage designations; and
- Small portions of the Site characterised as within a Group 3 area in Scottish Planning Policy (2014)¹³ with the majority in Group 2 due to peatlands though initial peat and ecology surveys indicated peat was not extensive across the Site.

The Development layout has evolved throughout the duration of the EIA. This iterative approach has allowed the findings of the consultation, along with the results from the ongoing environmental surveys, to guide the evolution of the Development and allowed the design to be modified in order to avoid environmental effects, where possible.

This was achieved through detailed assessments of the environmental effects, consideration of the identified spatial constraints combined with consideration of the appearance of the Development from sensitive viewpoints to take account of landscape and visual considerations including other wind developments. A series of design iterations with project team input and site visits were held to inform the design process. These involved members of the EIA and technical team who provided information on potential constraints following the baseline assessments. The process was also informed by detailed civil engineering requirements to ensure technically viable design solutions.

There were a number of individual design iterations to explore the various technical and environmental issues identified through baseline surveys. Through the baseline surveys, it became apparent that there were site sensitivities in relation to landscape and visual effects, cultural heritage, ecology, ornithology and peat, and the layout was modified to take account of these most notably siting turbines further south to avoid turbines directly adjacent to the A836 and taking access from off the A897 to further reduce any development adjacent to the A836.

This also allowed the design to focus on refining the appearance of the Development, and to ensure that the final composition is fully considered the various constraints. The final design has been subject to the assessment, detailed throughout this EIA Report.

¹³ Scottish Government (2014) Scottish Planning Policy [Online] Available at: <https://www.gov.scot/publications/scottish-planning-policy/> (Accessed 07/08/2020)

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4 DEVELOPMENT DESCRIPTION

The layout of the Development is shown on Figure 2 in NTS Appendix A.

4.1 Development Components

The Development will comprise of up to 12 three-bladed horizontal axis turbines with a maximum tip height of 149.9 m as well as all associated infrastructure, including substation, crane hardstandings, underground cabling, external transformers (if required), temporary construction compound, up to two borrow pits, temporary laydown areas, and a permanent anemometry mast of up to 92 m. The total installed capacity would be up to 49.9 megawatts (MW). The Site will be accessed via the A836 and A897 with a new junction from the A897.

The components of the Development are summarised in Table 1.

Table 1: Key Parameters of the Development

Element	Details
Turbines	Up to 12 turbines, each with a maximum tip height of 149.9 m. Depending on the final turbine choice, a small transformer may be located at the base of each turbine. Each turbine will have a foundation with a diameter of approximately 20 m, with a depth of approximately 3-4 m.
Access Track	Access tracks to serve the construction and operation of the wind farm with a minimum width of 5 m. This will consist of localised upgrades along approximately 0.5 km of the existing onsite tracks and 6.5 km of newly constructed track.
Electrical Infrastructure	The electricity substation compound would comprise a fenced hardstanding with dimensions of approximately 100 m x 50 m, which would contain electrical equipment and a single storey control building measuring approximately 16.5 m x 11.5 m. Underground cabling, laid where possible alongside the access tracks, will link the turbine transformers to the onsite substation.
Crane Hardstanding	Crane hardstandings will be required adjacent to each turbine and will be approximately 45 m x 35 m. In addition to the main hardstanding areas, there will be additional flattened areas for crane assembly and turbine blade storage; however, these will be temporary and only include small areas of hardstandings.
Temporary Construction Compound	A temporary construction compound will be required during the construction of the Development, forming an area of hardstanding providing space for portakabins, parking and lay down areas; this will measure a maximum of 100 x 50 m and is within an area of existing hardstanding associated with the adjacent quarry.
Borrow Pits	Up to two onsite borrow pits are proposed. The locations of the two borrow pits have been influenced by environmental considerations; however, the final location, number and estimate of material from each potential site would be determined once full ground investigation works and testing have been completed.
Site Access	The Site will be accessed via the A836 and A897 with a new junction from the A897.

4.2 Construction Phase

The construction period for the Development would be approximately 15 months in duration.

The starting date for construction activities will largely be dependent upon the date that consent might be granted and grid availability; subsequently, the programme would be influenced by constraints on the timing and duration of any mitigation measures confirmed in the individual technical chapters or by the consent decision.

Construction activities have been assumed to take place between 07:00 to 19:00 hours on weekdays and 07:00 to 13:00 on Saturdays, with the exception of any emergency working or turbine deliveries.

It would be the responsibility of the main construction contractor to update and implement the Construction Environmental Management Plan (CEMP) in Appendix A4.1.

Prior to construction, the CEMP would be updated, collating all measures required during construction to avoid and minimise environmental harm. The CEMP will include:

- Site induction and training;
- Working hours;
- Enabling works;
- Surface water and drainage management;
- Waste management;
- Wastewater and water supply monitoring and control;
- Oil and chemical delivery and storage;
- Water quality monitoring;
- Ecological protection measures;
- Construction noise management;
- Cultural heritage protection measures;
- Handling of excavated materials;
- Forest and woodland management;
- Reinstatement and restoration;
- Traffic management;
- Protocol to access the Site;
- Environment incident response and reporting;
- Use and extent of borrow pits;
- Method statements and risk assessments;
- Final drawings and details of access tracks; and
- Final drawings and details of turbine foundations.

4.3 Operational Phase

During operation, general servicing is required. Each turbine manufacturer has specific maintenance requirements, but typically, routine maintenance or servicing of turbines is carried out at least once per year. In the first year, there is also an initial service shortly after commissioning.

4.4 Decommissioning Phase

The Development has been designed with an operational life of 30 years. At the end of the operational period, it would be decommissioned and the turbines dismantled and removed. Any alternative to this action would be subject to further consenting process.

5 EIA METHODOLOGY

Environmental Impact Assessment (EIA) is a process that aims to ensure that permissions for developments with potentially significant effects on the environment are granted only after the assessment of likely significant environmental effects has been undertaken. The assessment must be carried out following consultation with statutory consultees, other interested bodies and members of the public.

EIA is an iterative process of assessment and design whereby prediction and assessment of effects inform the design of the Development. The Development can then be refined in order to avoid or reduce potential environmental effects, where necessary, through the use of mitigation measures.

The EIA Report has been prepared following a systematic approach to EIA and project design. The process of identifying environmental effects is both iterative and cyclical, running in tandem with the iterative design process. The key elements in an EIA are:

- Iterative project design, taking feedback from consultation and applying it to the Development design process on an ongoing basis throughout the EIA process;
- Scoping and ongoing consultation, including consideration of responses and how these should be addressed as part of the EIA;
- Technical environmental impact assessments; and
- Preparation and submission of the EIA Report.

The aim of the scoping process is to identify key environmental issues at an early stage, to determine which elements of the Development are likely to result in significant effects on the environment and to establish the extent of survey and assessment required for the EIA.

The initial request for a Scoping Report was submitted to the Council in April 2019, and the second Scoping Report, containing alternative design parameters to the initial Scoping request, was submitted in October 2019. Both Scoping Reports described the Development, the proposed EIA methodology and the key issues to be addressed. The Scoping Reports were sent to a range of consultees as agreed in advance with the Council.

The Applicant consulted the members of the local community through attendance at local public exhibitions:

- One was held in Melvich Community Hall in June 2019; and
- A 'Virtual Exhibition' was held from the 20th October to 10th November 2020 with four Q&A sessions on the 4th and 10th of November. The public exhibition was hosted online due to the Scottish Government's COVID-19 advice and guidelines¹⁴.

A number of environmental disciplines have been assessed to identify any effects that may be significant in the context of the EIA Regulations. Mitigation is proposed where possible to prevent significant effects.

In accordance with the EIA Regulations, the assessment has considered 'cumulative effects' where applicable.

¹⁴ The Scottish Government (2020) Online Public Exhibition established in accordance with COVID-19 Scottish Government advice and regulations [Online] Available online at: <https://www.gov.scot/publications/coronavirus-covid-19-planning-guidance-on-pre-application-consultations-for-public-events/> (Accessed 22/9/2020)

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6 LANDSCAPE AND VISUAL

Chapter 6 of the EIA Report assesses the likely significant landscape and visual effects of the Development during construction, operation and decommissioning, with reference to mitigation which was developed during the design and planning process.

Zone of Theoretical Visibility (ZTV) modelling was undertaken to establish where the Development will be visible. This was a bare-ground calculation and does not take account of screening by buildings or vegetation/woodland. The assessment of landscape and visual effects was focussed on potential significant effects within approximately 25 km of the Development. Cumulative effects were identified considering other operational, consented and proposed (valid application submitted) wind farms within 25 km of the Development. Consultations with NatureScot¹⁵ and The Highland Council have been undertaken throughout the assessment.

The assessment finds that the Development will have some significant landscape and visual effects on the surrounding landscape and visual receptors.

The landscape of the Site is of large scale, and has qualities that indicate that it could be suitable for large scale wind energy development. The location of the Site, south of the A836 on the north coast of Sutherland will mean that the Development will be visible from along the coast, such as from along the A836, from Portskerra and Melvich as well as from parts of Strath Halladale located further inland.

Significant effects have been identified for landscapes including the host landscape within approximately 5-7 km from the Site (described as 'Sweeping Moorland and Flows' in published Landscape Character Assessments), for 'High Cliffs and Sheltered Bays on the east side of Strathy Point within 8-11 km, and for other landscape areas within 5-6 km at the coast (described as 'Sandy Beaches and Dunes' and 'Coastal Crofts and Small Farms') and along Strath Halladale (described as 'Strath'). Significant effects have also been identified for some of the selected viewpoints (up to approximately 10 km) and for the local settlements of Melvich-Portskerra and Reay. Significant effects have been identified for a section of the A836 along the coast, between Forss and Armadale, and a number of other sequential views from sections of routes have been identified (the northern section of the A897 Strath Halladale, and routes and Core paths around Reay and Melvich-Portskerra).

The relationship between the Development and the existing Baillie, Forss and Strathy North Wind Farms contributes to some of the significant effects set out above, with the Development becoming an additional 'occasional' wind farm along the coast. Potential relationships with other possible future wind farms are considered in the cumulative assessment, and it is judged that the Development will contribute to an increase in the perceived presence of wind farm development inland of the north coast when Limekiln (consented) Wind Farm is present (in addition to the existing wind farms). Where Limekiln Wind Farm and the Development will be seen together, significant effects have been identified for a number of receptors within approximately 5-7 km. The cumulative assessment also considered effects with less certain wind farm schemes, including Drum Hollistan 2 (in planning at the time of assessment¹⁶) which is proposed just east of the Development Site. The Development will have a paired relationship with Drum Hollistan 2 Wind Farm, which will result in some significant effects, but other effects may be reduced such as where the Development is seen behind Drum Hollistan 2 Wind Farm. Overall, the Development will play a role in the increasing presence of wind farms along the north coast, spreading the area that can be described as a 'landscape with wind farms' westwards.

¹⁵ Scottish Natural Heritage (SNH) rebranded in August 2020 as NatureScot. Where relevant reference is still made to SNH within this chapter in respect of guidance which remains valid and is yet to be republished etc.

¹⁶ It is noted the cut-off date for the cumulative assessment is 15th September 2020

NatureScot have identified areas of 'Wild Land' to the south of the Site (where there is little or no current human influence and the landscape is remote, inaccessible and with a sense of solitude). The introduction of the Development just outside the 'East Halladale Flows Wild Land Area' will have significant effects on some of the characteristics of the north-western parts of the Wild Land Area (within approximately 7-8 km). However, it is noted that these north-western parts of the Wild Land Area are influenced by views of settled coast, existing wind farms and the Dounreay UKAEA site. With other wind farms present (in particular the consented Limekiln 2 Wind Farm or the Drum Hollistan 2 Wind Farm in planning), the wildness characteristics related to the absence of man-made structures will be diminished by the presence and visibility of those wind farms. The effects on the Wild Land Area as a result of the Development will relate less to the introduction of such structures and more to the relationships between the groups of turbines changing the perception of the remoteness of the wild land.

Overall, the assessment identifies that significant landscape and visual effects will occur as a result of the introduction of the Development. These are considered to be relatively limited in extent given the scale of the Development.

7 ECOLOGY

Chapter 7 of the EIA Report evaluates the effects of the Development on habitats, flora and fauna.

Baseline Ecology Surveys were completed between January 2019 and October 2019 (inclusive). The survey programme comprised the following: Protected Species Surveys (including wildcat survey), Bat Surveys, Extended Phase 1 Habitat Surveys, National Vegetation Classification Survey (NVC) and Fisheries Habitat Surveys. The results of these surveys, together with an ecology Desk Study, were used to identify those terrestrial species and designated sites that would potentially be affected by the Development.

Six statutory sites were identified within 5 km of the Site as part of the Desk Study: Caithness and Sutherland Peatlands SPA and Ramsar, and East Halladale, Strathy coast, Red Point Coast, West Halladale, Sandside Bay SSSI. Peatland habitat was the most widely recorded habitat type, and collectively comprised 79 % of Survey Area. The most abundant peatland habitat recorded was blanket bog, which represented 37 % of the Survey Area, and as such was the dominant habitat recorded within the Survey Area. Blanket bog was most extensive in the south-east but was generally confined to basins elsewhere. Other peatland habitats included wet heath, wet heath mosaics, wet modified bog mosaic and wet modified bog and their mosaics.

Two NVC communities were determined to be dependent upon groundwater associated with this habitat: M32 and M10a. Some small areas of woodland were recorded and included conifer plantation, much smaller areas of scrub and broadleaved woodland and scattered scrub and trees recorded amongst the other habitats.

Overall Site suitability for protected species (excluding bats) was low and this was reflected by the limited evidence of protected species using the Site, with only otter being recorded. Bat surveys revealed very low numbers of bats using the Site for feeding or commuting. No bat roosts were identified during the surveys.

Based on these results, six Important Ecological Features (IEFs) were identified as having the potential to be affected by the Development and required assessment: Caithness and Sutherland Peatlands SAC/Ramsar, East Halladale SSSI, Blanket bog, Bats, Otter and Salmonid Fish. A detailed assessment of potential effects on these IEFs during all phases of the Development (construction, operation and decommissioning) was completed. This included potential effects such as habitat loss, disturbance, pollution and turbine-related mortality. The assessment found that the effects of the Development on ecology will be of low to negligible magnitude and not significant in terms of the EIA Regulations. Similarly, there are considered to be no significant effects on nearby statutory sites in terms of the EIA Regulations.

A Habitat Regulation Appraisal (HRA) was also carried out on the Caithness and Sutherland Peatlands SPA and Ramsar, via an HRA screening and shadow Appropriate Assessment, and determined no adverse effects.

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8 ORNITHOLOGY

Chapter 8 of the EIA Report evaluates the effects of the Development on bird species of conservation concern and their supporting habitats.

Two years of Baseline Ornithology Surveys were completed between April 2014 and March 2016, with a further seven months of surveys completed during the 2018 breeding season (February to August). The survey programme comprised the following: flight activity surveys throughout both survey periods, moorland breeding bird surveys during all survey years, targeted surveys for breeding raptor and diver species during all survey years, Foraging Goose and Swan Surveys during both survey years and winter bird surveys in 2014-16 only. 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 Development.

Several statutory sites were identified within 20 km of the Site as part of the Desk Study, including the Caithness and Sutherland Peatland (SPA and Ramsar site (which is designated for several upland breeding bird species), the North Caithness Cliffs SPA (which is designated for several breeding seabird species and breeding peregrine), and the Caithness Lochs SPA and Ramsar site (which is designated for non-breeding greylag and Greenland white-fronted geese and whooper swan).

During the 2014-16 Flight Activity Surveys, a total of 279 flights by 25 target species were recorded (148 flights in 2014-15 and 131 in 2015-16). Flight activity was similar between the two years, and levels of flight activity were highest during the breeding season in both years, with very few flights recorded during the non-breeding seasons. The overall levels of flight activity in 2018 (196 flights by 22 target species) was higher than during each of the previous two survey years, despite the shorter survey period.

Seven protected raptor species were recorded, of which four were potentially or confirmed to be breeding in the wider area. Red-throated diver was regularly observed, and was confirmed to be breeding in the wider area during all survey years. Eight wader species were confirmed or potentially breeding within 500 m of the Study Area during one or more survey years. Small numbers of greylag geese were potentially breeding just outside the Study Survey Area in all survey years. A small colony of Arctic tern was also established in the wider area in 2018. Other notable breeding birds included crossbill.

Low levels of activity were recorded during the winter bird surveys and there was no evidence that geese or swans from the Caithness Lochs SPA made regular use of the Site for foraging or roosting.

A detailed assessment of potential effects on statutory sites and sensitive bird species during all phases of the Development (construction, operation and decommissioning) was completed. This included potential effects due to habitat loss, disturbance and collision risk. The combined effects of the Development together with other developments in the wider area were also considered.

The Site was designed to take into account ornithological sensitivities and reduce potential effects on birds. A Bird Protection Plan will be produced to ensure that all breeding birds and any protected roosting species are protected during construction and decommissioning of the Development as well as during any major works required during the operational phase. In addition, specific mitigation will be implemented to ensure that protected bird species are not disturbed during any works associated with the Development. Following full implementation of this mitigation, no significant effects of the Development on statutory sites or sensitive bird species are predicted.

Peatland habitats will be restored, which will benefit upland breeding birds such as waders and raptors. A programme of ornithological monitoring will also be completed during and

post-construction to identify whether observed effects on key species are in line with those predicted, and to determine how birds use areas of restored peatland habitat.

9 ARCHAEOLOGY AND CULTURAL HERITAGE

Chapter 9 of the EIA Report evaluates the effects of the Development on archaeological and cultural heritage receptors.

The assessment of archaeological and cultural heritage effects has taken into account both potential direct effects arising from proposed construction activities, as well as indirect (primarily visual) effects as a result of changes to the settings of cultural heritage assets. Consultation has been undertaken with Historic Environment Scotland and The Highland Council Historic Environment Team.

The assessment was informed by a Desk-Based Assessment (DBA) which aided understanding of impacts on known (buried) archaeological remains within the core study area, and the potential for unknown (buried) archaeological remains to be present. The DBA revealed that the archaeological interest of the core study area is largely confined to the waterways and lower elevations to the west along the River Halladale with 22 archaeological remains recorded. The potential for any unknown archaeological remains to survive within the Development is low due to the exposed upland nature of the core study area which has avoided all known archaeological remains and the key waterways. Given the low potential for unknown archaeological remains to survive, no mitigation is recommended.

The assessment considered the potential effect of the turbines in relation to the setting of heritage assets beyond the core study area. This included consideration of all Scheduled Monuments and Listed Buildings out to 5 km from the Development and selected heritage assets between 5-10 km, as agreed during consultation with Historic Environment Scotland. The key aim of the assessment was to determine whether the turbines altered the settings of historic assets so that the cultural significance of these assets was diminished.

All changes to setting were not significant except at the Halladale Hut Circles Scheduled Monument (SM3304) which identified moderate effects that would be significant. No mitigation is considered feasible for this effect; however, the landowner has indicated his intentions to retain the woodland between the monument and turbines which provides a visual barrier separating the two. Any effect is considered temporary, and reversible upon decommissioning.

The cumulative effect of the Development considers where the Development, in combination with other consented wind farm developments or those for which an application has been submitted, has the potential to surround and dominate heritage assets. The cumulative effect assessment identified two clusters of turbines as a result of the Development and Drum Hollistan 2 and another cluster at Limekiln and Limekiln Extension. As the location of these two turbine clusters is a more distant landscape feature that would not overly dominate any heritage assets or key views, a cumulative effect on heritage features is unlikely.

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10 NOISE

Chapter 10 of the EIA Report evaluates the effects of noise from the Development on nearby noise-sensitive receptors during construction, operation and decommissioning.

During construction, noise may result from the use of plant and machinery to carry out construction activities. However, due to the substantial separation distance between the Development and residential dwellings, no significant effects were identified. Notwithstanding this, best practice mitigation measures will be adopted to manage noise emissions during construction, including restrictions on construction working hours. Changes in noise level associated with increases in traffic flow due to construction traffic associated with the Development, and possible coincidental construction of nearby wind energy developments, will not generate any significant effects on the surrounding residential dwellings, with exception of any located within 10 m of the road at two locations. Here, the effects of the increase in traffic flow due to the construction of the Development have been found to be significant.

The operational assessment has been undertaken in accordance with the recommendations of ETSU-R-97, the method of assessing wind turbine noise recommended by Government guidance, and following the current best practice methods described in the Good Practice Guidance, as endorsed by the Scottish Government. Noise modelling of the Development, in conjunction with the surrounding cumulative developments, indicates compliance with the requirements of ETSU-R-97 at all receptor locations. No significant noise effects are anticipated from the on-site substation given the substantial separation distance between the substation and nearest receptor.

Noise during decommissioning will be of a similar nature to that of construction and will be managed through best practice or other guidance or legislation relevant at the time.

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11 TRAFFIC AND TRANSPORT

Chapter 11 of the EIA Report identifies the potential effects of changes to road traffic expected as a result of the Development.

Most traffic generated by the Development is associated with the construction phase which is anticipated to last up to 15 months. The main approach considered in this assessment assumes that wind turbine components will be transported as abnormal loads from the Port of Scrabster, and that the potential access corridors for the study area can be defined as:

- A9;
- A836;
- A897; and
- Site Entrance.

Baseline traffic flow information was obtained from data published by the Department of Transport (DfT) at three locations, with three additional automatic traffic counts also being commissioned along the route. The assessment then considered the increase in traffic as a result of the Development based upon Department for Transport forecasts National Trip End Model and Trip End Model Presentation Programme, both of which are industry standard tools for estimating traffic growth.

Construction traffic classified as being an 'abnormal load', will approach the Site from the east via the main approach corridor. Restrictions¹⁷ will be put in place to restrict standard construction traffic (HGVs and LGVs) from utilising the A897 between Helmsdale and the Site as part of the route to Site. A small section of the A897 (approx. 200 metres or 0.12 miles) will be required in order to access the Site from the A836; however, this will not cause significant impact along the road due to the limited length of road that will be utilised.

The main potential transportation impacts would be associated with the movement of abnormal loads, heavy goods vehicles (HGVs), light goods vehicles (LGVs), and cars to and from the site during the construction phase.

It is estimated that a total up to 16,729 vehicle movements (where one movement equals one arrival or departure) would be associated with the construction phase of the Development, as a worst case. This figure includes 6,210 HGV and abnormal load delivery movements and 10,519 light vehicle (car and van) movements.

Over the construction period, the total daily vehicle movement numbers peak during month eight where a total of 1,519¹⁸ vehicles movements are predicted. This is principally due to the deliveries of concrete and stone for the access tracks, crane hardstandings and turbine foundations.

The increase in overall traffic flow and HGV flow was identified to have one potential significant effect on one sensitive receptor, pedestrian amenity, at four locations along the access route. In order to mitigate the effect on pedestrian amenity, a number of mitigation measures are adopted in the Traffic Management Plan (Appendix A11.3) as follows:

- As far as reasonably possible deliveries should be scheduled outside of school opening and closing times; and
- Drivers of all delivery vehicles to be made aware during induction of the presence of schools, care homes and tourist locations along the construction route;

¹⁷ Exceptions shall be granted to sub-contractors living or staying along the A897 and the B871 roads, to ensure that local accommodation businesses on these roads are not affected by the above restriction. This will also ensure that sub-contractors are not restricted from staying in accommodation along the A897 and the B871.

¹⁸ For the purposes of this assessment, it is assumed that concrete for each turbine foundation will be formed from imported ready-mix concrete. Onsite batching is the preferred option by the Applicant and the ability to accommodate batching onsite would be confirmed following post-consent site investigations. Therefore, in the event that onsite batching is utilised, the peak daily number of vehicles associated with this phase of works would be reduced.

- If possible, onsite batching should be considered to reduce max monthly anticipated vehicle movement of concrete deliveries during turbine foundation construction; and
- Communication with local communities should be undertaken for planned activities, such as turbine deliveries and concrete delivery days (if onsite batching is not possible).

With the implementation of the above measure the residual effect on pedestrian amenity is not significant in terms of the EIA Regulations. The traffic management plan will be developed in agreement with the Highland Council and Transport Scotland detailing the exact measures to be implemented during construction of the Development.

During operation traffic generation would be minimal and within the residual capacity of the road network and no significant effects were identified.

Prior to decommissioning of the Development, a traffic assessment would be undertaken with the relevant consultees to agree the mitigation implemented via Decommissioning Traffic Management Plan.

Cumulative effects were assessed and there is sufficient residual capacity on each of the roads within the study to accommodate the predicted increase in traffic which may occur in the cumulative scenario.

12 HYDROLOGY AND HYDROGEOLOGY

Chapter 12 evaluates the potential effects of the Development on the hydrological resources.

The hydrology and hydrogeology chapter summarises that the key hydrological receptors which have the potential to be affected by the Development are surface watercourses of Akran Burn, Giligill Burn and one unnamed watercourse, the groundwater unit of Lower Old Red Sandstone which is moderately productive, statutory designated receptors including a Ramsar site, moderately productive groundwater dependent terrestrial ecosystem (GWDTE) habitat, and one private water supply at Ackron Farm.

Embedded design and mitigation measures, as outlined in the Construction and Environmental Management Plan (CEMP), are included as part of the assessment of effects on hydrological receptors. Such embedded design measures include 50 m watercourse buffers and standard good practice for wind farms and construction sites. Such measures are considered to be sufficient in minimising the effect of receptors to minor or negligible effects.

Watercourse buffers of 50 m or more area implemented for all infrastructure associated with the Development with the exception of Turbine 7 (T7) crane hardstanding which extends 8.2 m into the Akran Burn 50 m watercourse buffer. Due to the slope gradient which is 2-5 degrees and implementation of good construction practice for management and minimising of silt, sediments, chemical or oil releases, the potential for rapid transfer of pollutants between works associated with T7 and the watercourse is considered to be minimal

One private water supply associated with Ackron Farm is considered to be at risk from the Development and implementation of an alternative temporary or permanent supply is required in line with, or an improvement upon, the quality and quantity of the current existing supply.

Excavations of greater than 1 m deep? associated with the turbine foundations of T8 are located within 250 m of moderately productive GWDTE and highly productive GWDTE which are considered to have the potential to be partially dependent on groundwater. Access tracks, which are excavations of less than 1m, are located within 100 m of a moderately productive GWDTE. Implementation of good practice wind farm construction measures, as outlined in the outline CEMP, with regards to dewatering, drainage and chemical and sediment release are considered to minimise potential effects on receptors to negligible.

The effects on the hydrological and hydrogeological environment, including water supplies, are considered to be of negligible to minor significance which is not significant in terms of the EIA Regulations. Cumulative and residual effects are considered to be of minor significance which is not significant in term of the EIA Regulations.

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13 GEOLOGY, SOILS AND PEAT

Chapter 13 of the EIA Report evaluates the effects of the Development arising from the construction, operation and decommissioning phases on the Geology, Soils and Peat resource.

The assessment for the Development was based on a desk study, site surveys, and consultation with the SEPA. Peat was identified as a sensitive receptor within the Site following peat probing surveys. 51% of these recorded no peat or peat less than 0.5 m, while 26% recorded peat between 0.5 m and 1.0 m. Thick peat (where the depth was greater than >1.0 m) was recorded at 23% of locations. As such, one of the key design objectives was to ensure that no turbines are located in greater than 1 m of peat which was achieved for all turbine locations. The assessment also analysed the risk of peat slide which indicated that the majority of the Site is generally of low risk with localised negligible risk areas, mainly in areas where no infrastructure is proposed. Notwithstanding this, infrastructure locations and existing site conditions should be checked at the time of construction and micro-siting adopted if required in order to maintain the design objective of avoiding any potential deep peat to minimise peat slide risk.

Construction mitigation will allow for the micrositing of infrastructure up to 50 m to avoid pockets of deep peat. The adoption of best practice for storage and re-use up peat onsite as well as drainage measures will be developed throughout the construction period to include robust peat management and a monitoring programme.

Implementation of the proposed mitigation measures and undertaking the construction works in accordance with best practice will ensure that there are no significant residual effects on geology, soils and peat from the Development.

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14 LAND USE, SOCIO-ECONOMICS AND TOURISM

Chapter 14 of the EIA Report assess the effects of the Development on the land use, socio-economic and tourism resources.

The assessment considers the potential effects arising from the construction, operation and decommissioning phases of the Development on the land use, socio-economic and tourism resource. Existing baseline conditions have been identified from desk-based collection of data, site visits and consultation with relevant stakeholders.

14.1 Land Use

The Site predominantly comprises of open moorland used for rough grazing; however, there are small areas of improved pasture, semi-improved grassland/quarry, and pockets of woodland grant.

The total new land take of the Development, consisting of the wind turbine foundations, crane hardstandings, new and upgraded access tracks, substation and control building and meteorological mast equates to 16 ha; following construction and restoration, the footprint of the Development on the surface of the ground will be 7.5 ha. This equates to approximately 1 % of the total land in the Site.

The construction phase is considered to have a short-term, negligible effect on land use activities on-site. The Applicant will work with the landowner to ensure that they are able to continue to operate their activities safely during this phase. The operational phase is considered to present a long-term, negligible effect.

14.2 Socio-Economics

The Development will result in contract opportunities for local and regional contractors both for construction activities themselves and throughout the supply chain. For the purposes of assessment, the expected scenario is based on the layout of 12 turbines and a 4 MW candidate turbine; therefore, the Development has an anticipated installed capacity of 48 MW. It is estimated that, during the construction phase, the Development will be worth approximately £29.6 million to the UK economy. Of that, £22.7 million is expected to be spent within Scotland (national) and £7.6 million is expected to be spent within Highland (regional).

It is anticipated that a temporary workforce averaging up to 60 people at any one time will be employed during the 15 month construction period. It is also likely that there will be some local employment generated as an indirect result of the construction of the Development. This could include supply chain spin-offs for local businesses and sub-contracted work relating to the transportation of labour and materials. Local shops, cafes, accommodation providers and hotels often experience an increase in turnover during the construction phase as they have opportunities to provide additional services to the developer and their contractors. There are several accommodation options in the local area, and it is expected that local services will be used by temporary construction contractors.

There may also be the opportunity for local people working on the Development to develop skills gained during construction which will be of benefit both individually and to the local economy in the longer term, such as project management and construction skills which would be transferrable to other construction roles, including other wind farm projects.

The construction will bring about short-term, beneficial, direct, indirect and induced effects to the area, through the increase in employment and expenditure on capital costs.

During operation, there will be limited employment opportunities which are likely to include a part-time maintenance engineer (local site operator) and a small number of staff to

occasionally service the turbines. Based on a 48MW site (4 MW candidate turbine) scenario, annual OPEX is expected to be in the region of £2.8 million per annum. Of this total spend in the region of 42% will be spent in the local area while 87% of the total operation and maintenance expenditure will likely be within the UK.

On this basis, it is estimated that, during the operational phase, the Development will result in approximately £2.4 million per annum to the UK economy. Of that approximately £1.1 million per annum will be spent is expected to be spent within Highland, particularly Caithness and Sutherland (local).

The Development will contribute £5,000 per MW installed capacity. This will result in an annual value of up to £240,000 per year. With 30 year consent, this will provide up to £7.2 million in community benefit (based on 12 turbines at 4 MW each). Any increase in capacity (up to 49.9 MW) will be reflected in a higher Community Benefit Fund.

In addition to the community benefit fund the Applicant has provided the opportunity for local community organisations to invest in the Development through shared ownership as well as using the infrastructure to deliver super-fast broadband. Shared ownership is defined as any structure that involves a community group as a meaningful financial partner in a renewable energy project.

There will therefore be beneficial long-term effects associated with the operation of the Development.

14.3 Tourism

The Site is located within a relatively remote setting with recreation opportunity based around the natural environment such as hills, wildlife, lochs and rivers, with few formally recognised tourist attractions within the Study Area including the North Coast 500 (NC500) is located directly adjacent to the north-west of the Site. The NC500 is described as a world-renowned Scottish tourist attraction consisting of approximately 500 miles of scenic route around the north coast of Scotland, starting and finishing in Inverness. The NC500 incorporates the A836 which runs along the north coasts of Sutherland. Beyond formally recognised attractions, the area is popular for recreational activities such as walking, cycling and field sports such as fishing.

There are nearby settlements which offer a range of accommodation; the nearest settlement offering accommodation is Melvich approximately 1.6 km to the west of the Site. Melvich has several accommodation options including The Sheiling B&B, located approximately 1.9 km to the north-west of the Site; and Melvich Hotel, located approximately 2.7 km to the north-west of the Site.

The settlement of Reay, located 4.3 km east from the Site offers accommodation within The Annex at Borlum which is located 4.5 km north-east of the Site; and Strathy, located 6.2 km west of the Site, offers accommodation at Salmon Landings, located 8.1 km north-west of the Site. Additionally, Armadale, situated 11.3 km west of the Site, also provides the accommodation option of Armadale House B&B, located 11 km west of the Site.

The potential for impact on tourism is closely linked to the perception of those visiting the area. A number of studies have been undertaken which consider the impact of wind farm development on public perception and tourism, which are discussed within the EIA Report. In summary, these studies highlight the varying opinions of visitors and residents regarding wind energy development, however, they suggest in all cases, that the majority of those surveyed do not have a negative attitude towards wind farms.

During construction access to the Site may be restricted; notices will be placed in prominent locations around the Site with details of any areas with restricted access, such measures would be agreed in advance with the Council. This would produce a short-term negligible effect.

Construction effects on amenity and enjoyment of the walks will be localised, as the construction works will only be detectable to route users for short periods along the route presenting a minor effect.

Other offsite resources such as the accommodation are unlikely to be affected by the construction of the Development. Local shops, cafes, accommodation providers and hotels often experience an increase in turnover during the construction phase as they have opportunities to provide additional services to the developer and their contractors. The effects of the construction phase of the Development will not have a significant effect on tourism and recreation receptors.

During operation the Site will be accessible to the public with the exception of temporary exclusions for health and safety reasons such as during maintenance.

Visual effects associated with the Development may occur at receptor locations, when people are looking towards the Development and from locations where clear views of the turbines are available. The visual effects of the Development on tourism and recreational resources such as the NC500 are assessed in **Chapter 6: Landscape and Visual** of this EIA Report.

There are a number of further Core Paths identified within the Study Area, however no Core Paths pass through the Site. The operation of the Development is not expected to alter the features or characteristics of nearby Core Paths. It is expected that the Development will have no impact on the behaviour of visitors/tourists that use paths within the Study Area. Therefore, the effect assessed is considered to be not significant in terms of the EIA Regulations.

Surveys of the public's attitudes to wind farms provide no clear evidence that the presence of wind farms in an area has a negative impact on local tourism. Tourists using the local core paths and local tourist attractions may have a particular sensitivity to visual effects; however, access to tourist facilities will be unaffected, and no significant effects are predicted.

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15 CLIMATE CHANGE AND CARBON BALANCE

15.1 Baseline Conditions

Climate Projections show that the trends over the 21st century in the UK are towards warmer and wetter winters and hotter, drier summers, with an increase in frequency and intensity of extremes weather events.

Climate parameters considered most relevant to the assessment are wind speed, temperature and precipitation. Increasing wind speeds have the potential to damage turbines or alter their efficiency for energy generation. Wind energy developments are sensitive to cold weather events and have the potential to encourage ice forming on turbines blades. Increase precipitation risks the potential for flooding on Site and destruction of the Development's infrastructure and therefore operation.

15.2 Assessment of Effects

15.1.1.1 Vulnerability of the Development to Climate Change

The predicted future baseline conditions and changes in wind speed, temperature and precipitation are highly unlikely to affect the operation of the Development throughout its lifetime. The effect is therefore not significant in terms of the EIA Regulations.

15.1.1.2 Influences of the Development on Climate Change

The Development will contribute up to 49.9 MW of installed capacity which will contribute to increasing renewable energy generation capacity within Scotland the UK.

A carbon balance assessment for the Development was generated using the methodology and carbon calculator provided in Calculating Carbon Savings from Wind Farms on Scottish Peatlands – A New Approach as recommended by the Scottish Government¹⁹. Based on this guidance, the Development has an expected CO₂ payback time of between 1.3 to 2.5 years compared to grid-mix electricity generation. This payback period is calculated as the length of time it will take the carbon savings produced as a result of the wind farm operation, to amount to the carbon costs used through construction of the Development. This helps to inform the viability of the wind farm development in terms of the carbon balance and overall savings.

The Development will not significantly influence climate change, and the Development will have a positive cumulative effect with regards to reduction in carbon emissions when considering the UK-wide electricity generation mix. As such, there is a positive significant effect of the Development on climate change.

15.1.1.3 Future Climate Change Scenario

Changes to future climate conditions are negligible over the lifetime of the Development, and therefore no further assessment is required and no significant effects are predicted as a result of climate change.

15.3 Proposed Mitigation

No negative significant effects are identified with relation to climate change and therefore no mitigation is proposed other than that already incorporated into the design.

¹⁹ Scottish Government (2008) Calculating carbon savings from wind farms on Scottish peat lands: a new approach [Online] Available at: [https://www.gov.scot/publications/calculating-carbon-savings-wind-farms-scottish-peat-lands-new-approach/pages/13/\(Accessed 18/05/20\)](https://www.gov.scot/publications/calculating-carbon-savings-wind-farms-scottish-peat-lands-new-approach/pages/13/(Accessed%2018/05/20))

15.4 Residual Effects

The Development will have a positive effect on carbon savings and a significant positive effect when considered cumulatively with UK-wide renewable energy deployment. No additional significant effects to those already identified within the EIA Report will occur as a result of climate change during the operational phase of the Development.

16 OTHER ISSUES

An assessment was undertaken of the effects of the Development upon other issues not covered elsewhere in the EIA Report including:

- Shadow Flicker;
- Telecommunications and other Utilities; and
- Aviation.

Shadow flicker is an effect that can occur when the shadow of a blade passes over a small opening (such as window), briefly reducing the intensity of light within the room, and causing a flickering to be perceived. As a result of the distance from the Development to the nearest properties, shadow flicker effects are only likely at two, financially involved single properties at low levels, shadow flicker effects will not be significant.

Consultation undertaken with telecommunication and utilities consultees has confirmed that the Development will not interfere with telecommunications and electromagnetic signals. Given the large separation distance from the SSE Networks Low Voltage mains, negative effects on infrastructure such as utilities are unlikely; however, safe systems of work, technical solutions and appropriate mitigation will be adopted to ensure no negative effects occur.

Operational wind turbines have the potential to affect the safe operation of aviation interests, including airfields, radars, meteorological radars and military low flying exercises. With specific regard to the Development, given the distance at which it is located to airfields, it will not have any significant effects on their safe operation. No primary or secondary radars provide coverage over the area which the Development is located. As such, the predicted impact on the NATS radars is not significant.

Additionally, the Development is located within a 'low priority' military low flying area. Consultation has taken place with the MoD from an early stage, and they do not have concerns with the Development on the basis that non-visible aviation lighting is installed on the turbines. As the turbines are less than 150 m to tip, there is no requirement for visible spectrum aviation lighting²⁰ and the turbines would be fitted with infra-red lighting scheme. No significant effects are predicted on the safeguarding of any civil aviation facility.

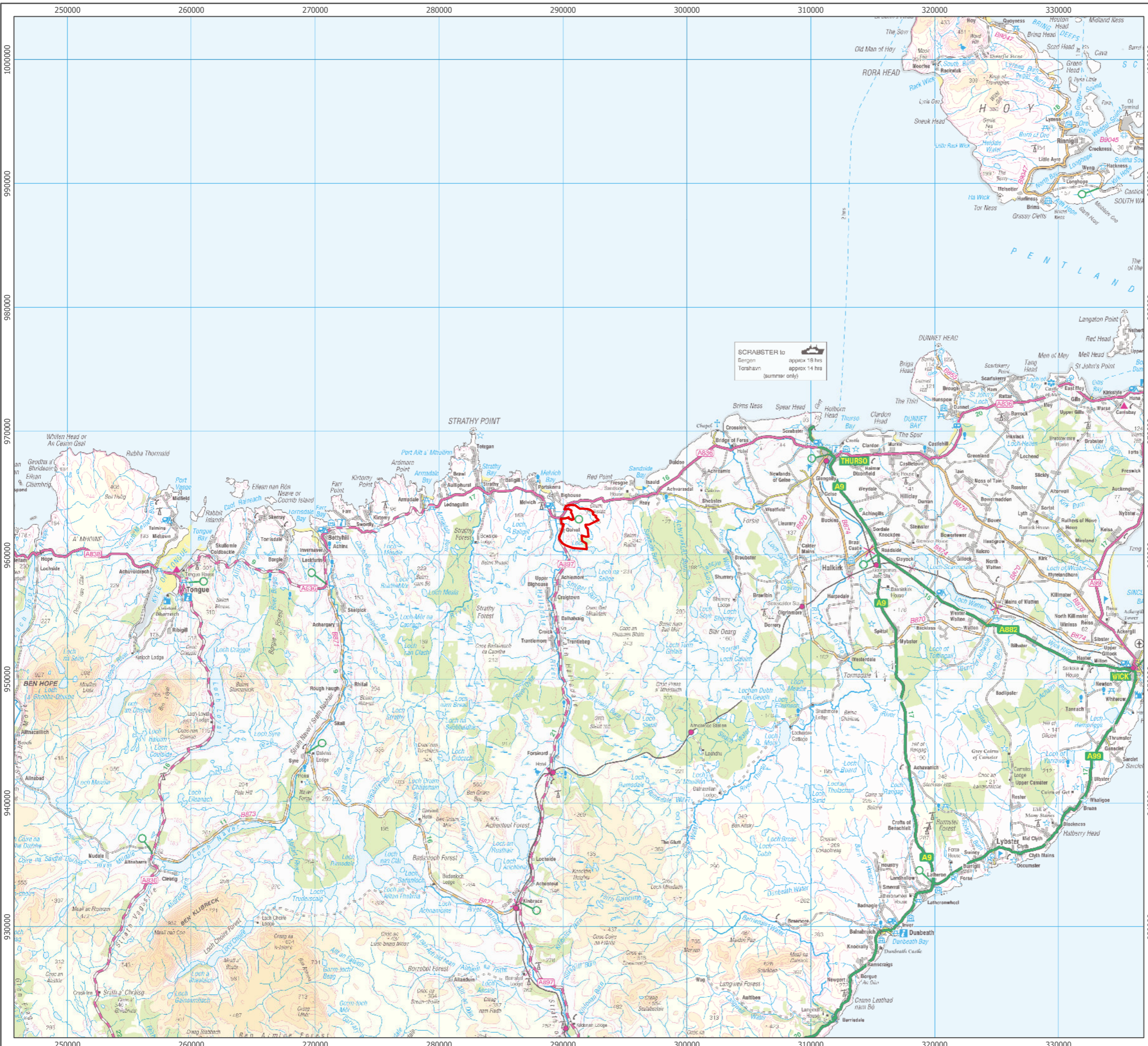
²⁰ CAA (2017) Policy Statement: Lighting of Onshore Wind Turbines Generators in the United Kingdom with a maximum blade tip height at or in excess of 150m Above Ground Level. Available at https://publicapps.caa.co.uk/docs/33/DAP01062017_LightingWindTurbinesOnshoreAbove150mAGL.pdf (Accessed 30/11/2020)

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APPENDIX A – NTS FIGURES

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Site Boundary



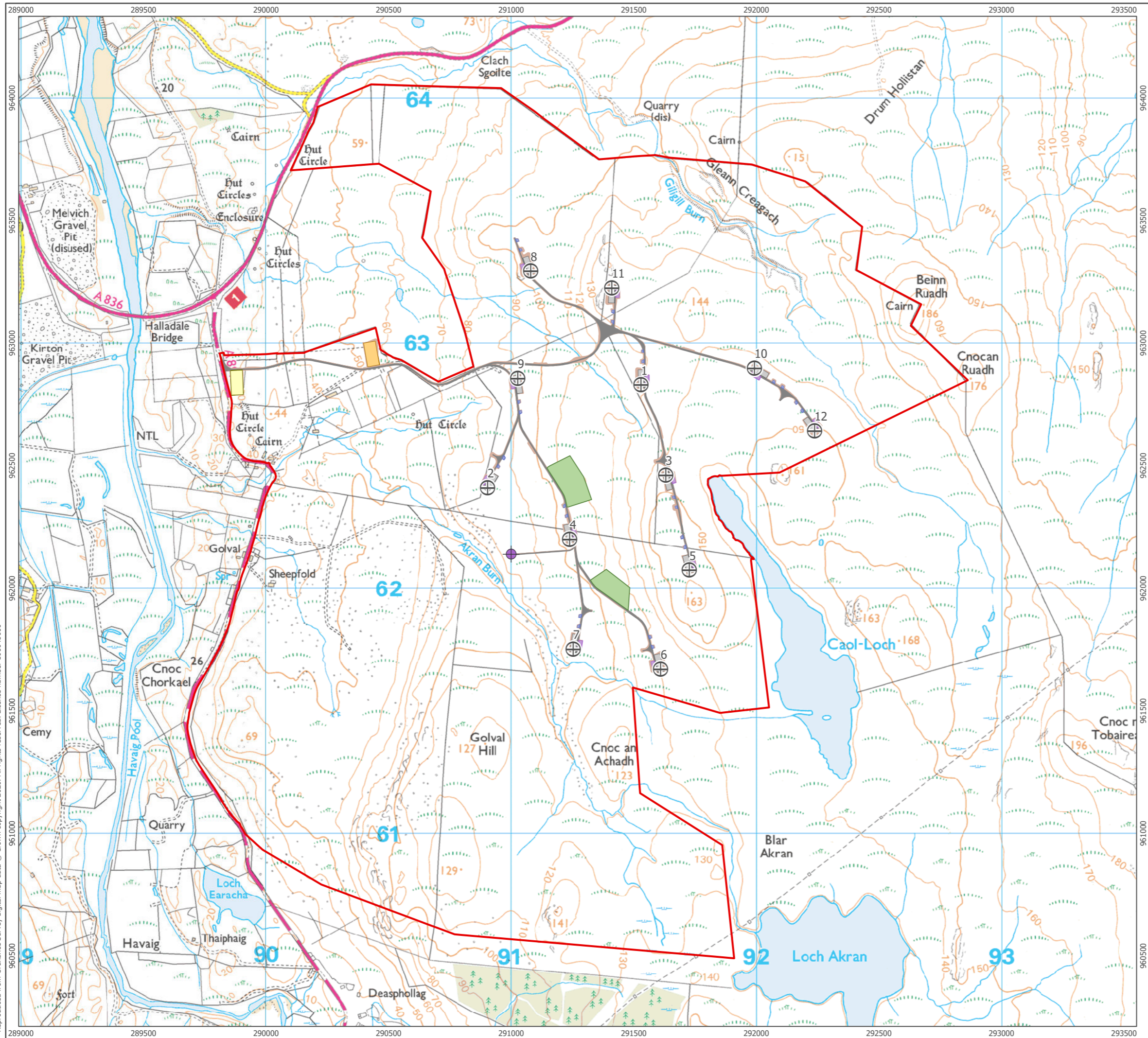
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





1:300,000 Scale @ A3



Produced By: JO	Ref: 3138-REP-164
Checked By: SC	Date: 01/12/2020

Site Location
 Figure 1

Ackron Wind Farm
 Non Technical Summary



-  Proposed Turbine Location
-  Site Boundary
-  Meteorological Mast
-  Access Track
-  Borrow Pit
-  Construction Compound
-  Crane Hardstanding
-  Crane Pads
-  Earthworks
-  Laydown Area
-  Substation

1:15,000 Scale @ A3



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Site Layout Plan
Figure 2

Ackron Wind Farm
Non Technical Summary

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