



Technical Appendix 6.1

Direct Scoping Documents Issued to
Consultees



PROPOSED HOLLANDMEY RENEWABLE ENERGY DEVELOPMENT

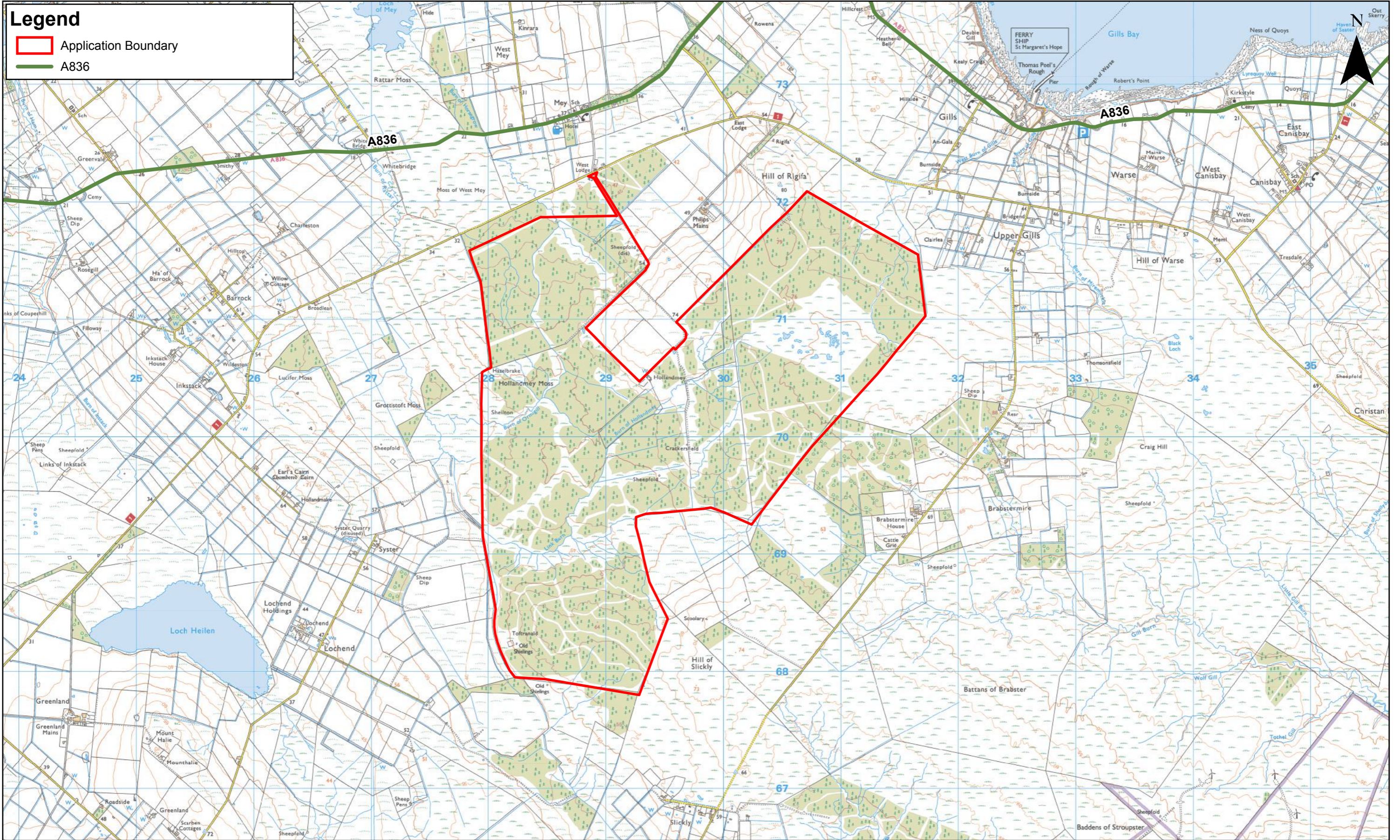
ScottishPower Renewables (SPR) is proposing to develop Hollandmey Renewable Energy Development near John O’Groats in the Highlands. The proposed Development is anticipated to comprise turbines with blade tip heights up to 149.9 metres and may include solar panels and an associated energy storage facility.

Site Location and Description

The Site is located approximately 8 km south west of John o’ Groats and 16 km east of Thurso, situated within the north eastern part of the Caithness area of the Highlands. The Site lies within a Sweeping Moorland and Flows Landscape Character Area (LCA), which is described as a flat to gently undulating and smooth landform. The Site contains sections of Coniferous Woodland Plantation and is located within an area of carbon rich soils. The Phillip Mains Mire Site of Special Scientific Interest (SSSI), an area of Class 1 Peatland, is in the north east area of the Site. The current land use is classified as agricultural/moorland/forestry.

The area around the Site is characterised by small scale settled coastal seaboard and large scale, open and simple moorland.

The location of the proposed Development is within an area which has multiple existing and proposed windfarm developments. These include the operational Lochend Windfarm and Stroupster Windfarm, and the proposed Slickly Windfarm.



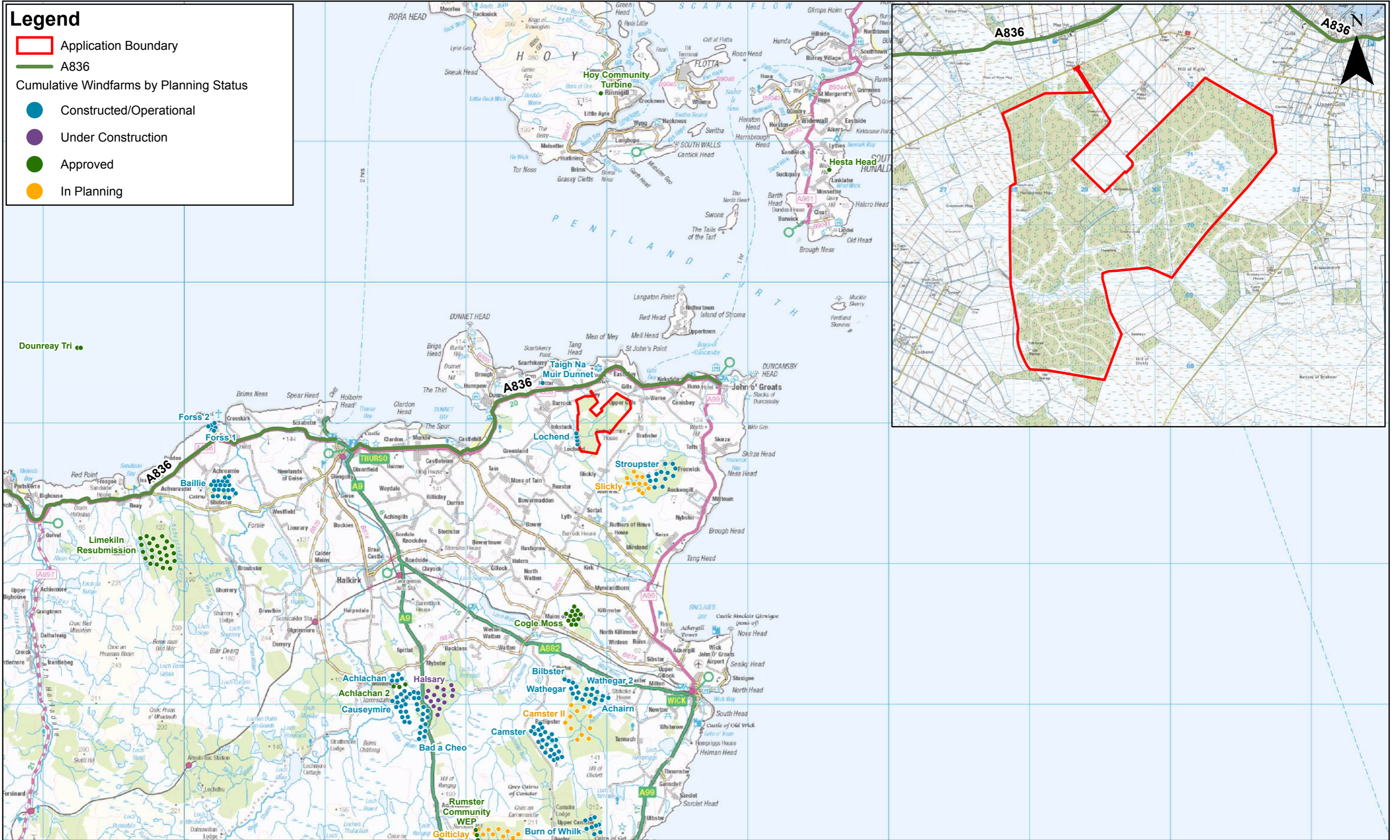
Rev	Date	By	Comment
D	14/07/2020	AJ	RLB changed.
C	01/07/2020	AJ	RLB reverted to original.
B	22/05/2020	AJ	Application boundary updated.

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Hollandmey Renewable Energy Development Application Boundary

Drg No	HMY_C_016	
Rev	D	Datum: OSGB36
Date	14/07/2020	Projection: TM
Figure	-	



Rev	Date	By	Comment
C	14/07/2020	AJ	RLB updated.
B	01/07/2020	AJ	RLB updated.
A	27/05/2020	AJ	First Issue.

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Hollandmey Renewable Energy Development Cumulative Windfarm Developments

Drg No	HMY_C_025	
Rev	C	Datum: OSGB36
Date	14/07/2020	Projection: TM
Figure	-	

Project Description

Initial feasibility and design work indicate that the Site has the potential to accommodate in the region of 11 wind turbines of up to 149.9 metres to blade tip and an associated energy storage facility with solar park. It is anticipated that wind turbines of this scale will be required to ensure the commercial viability of the project.

The design will look to find an appropriate balance between optimising the energy yield and minimising the environmental effects. This will be important to maximise the contribution the proposed Development would make to the Scottish Government's renewable energy and climate change targets, and the response to the climate emergency. The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 set out a legally binding target of net-zero by 2045. The Scottish Climate Change Plan (SCCP) (2018), which is currently being revised to reflect the updated targets of the Climate Change Act, includes a target of 50% of Scotland's energy need to be met by renewable energy in 2030. The SCCP also included a goal for 100% of Scotland's electricity to be generated by renewables by 2020, which has yet to be met so it is important that there is increased investment in renewable energy developments to avoid falling further behind.



In addition to the wind turbines, the proposed Development may include solar panels and an energy storage facility. This will be used to store the green electricity produced by the wind turbines and could be used to smooth out variances between wind resource and electricity demand. It can also be used to provide services to help stabilise the operation of the local electricity network.

At this time, the preferred access route from a suitable port to the A836 has yet to be confirmed. However, a range of potential access route options are being explored and the final route will be selected with regard to transport and environmental constraints and consultation with key stakeholders.

Construction of the proposed Development is anticipated to commence in summer 2022 and will take approximately 22 months.

There is no proposal to limit the lifetime of the proposed Development. Therefore, the assessment of potential effects on all aspects will consider the operational phase of the proposed Development without time limitations. The principle of decommissioning the entire project will therefore not be assessed. Should decommissioning of any of the proposed Development be required, e.g. as a result of failure of a wind turbine beyond economic repair, any effects would be of lesser magnitude than those resulting from the construction phase of the proposed Development and, as such, effects associated with the decommissioning phase have been scoped out of further assessment. Should consent be granted, it is anticipated that there would be a condition which would deal with the requirement to remove turbines if they become non-operational for a defined period of time.

Environmental Impact Assessment

SPR is committed to ensuring that its operations have the minimum adverse effect on the local environment. The Environmental Impact Assessment (EIA) forms a key part of the development of the proposal and is made up of a series of technical studies that consider specific aspects of the proposed Development.

The technical subject areas that are proposed to be scoped into the EIA are:

- hydrology, hydrogeology, geology and soils;
- forestry;
- access, traffic and transport;
- cultural heritage;
- noise;
- ecology and biodiversity;
- landscape and visual;
- ornithology;
- socio-economics;
- shadow flicker;
- solar glint and glare;
- telecommunications;
- aviation; and
- peat and carbon balance.

The EIA process will be used to inform the layout and the design of the proposed Development. The results of the EIA will be presented in an EIA Report that will be submitted with the application for consent.

Consultation

Stakeholder consultation is an important component of the EIA process. To inform the EIA, consultation is being undertaken with statutory and non-statutory consultees to identify relevant baseline information and key issues or concerns that these consultees wish to raise. It is envisaged that consultation will continue throughout the EIA process, for example to discuss proposed mitigation.

SPR acknowledges that there is uncertainty regarding the evolving COVID-19 situation and the impact that it may have. The company recognises that this is a public health issue and is committed to protecting the health and well-being of all involved. SPR will regularly review their processes and make adjustments to reflect the latest advice from the Scottish and UK governments. Given the current restrictions on public events and social gatherings, SPR is adopting innovative ways of engaging with communities and the public to inform them about the Hollandmey Renewable Energy Development.

Feedback provided via the pre-application public consultation will be captured and reported in a statement of community consultation to be provided to the Scottish Government alongside the application for consent.

Section 36 Application

Due to the size of the project, an application for permission to construct and operate the proposed Development will be made to the Scottish Ministers under section 36 of the Electricity Act 1989. We anticipate that this application will be submitted in Winter 2020.

Contact Information

We welcome your comments on the proposed Development. If you have any comments, feedback or would like to find out more information about the project, please contact the project team:

Email: HollandmeyRED@scottishpower.com

Switchboard: +44 (0)141 614 9075

Hydrology, Hydrogeology, Geology & Soils

Background

Pre-application advice for the proposed Development was requested from the Highland Council (THC) and a response provided in March 2019. Key aspects relating to hydrology, hydrogeology, geology and soils are summarised here.

THC identified that the Site (the area within the application boundary) contains areas of blanket bog listed as Class 1 peatland, which have significant protection under Scottish Planning Policy. Proposals will be required to demonstrate that significant effects on Class 1 peatland can be substantially overcome by siting, design and other mitigation. The advice identifies that a peat depth survey, peat management plan and peat slide risk assessment should be undertaken in line with current guidance, and a Construction Environmental Management Plan should be produced. Alternatives to peat excavation, such as floating infrastructure and piled turbine foundations should be considered, and peatland restoration opportunities should be identified. Floating tracks should be considered the preferred option throughout unless proven to be technically infeasible.

Any local private water supplies will require assessment and, if relevant, protection from impact. Groundwater-dependent terrestrial ecosystems will require protecting and an assessment will be expected.

Careful siting of infrastructure could avoid the requirement for a flood risk assessment. Development or land raising within a floodplain area should be avoided. New or upgraded watercourse crossings need to be designed to accommodate the 1-in-200 year flood flow, plus 20% climate change allowance. A drainage impact assessment was requested by THC, including details relating to field drains and management of surface water drainage.

Consultant Experience and Expertise

The technical lead for Hydrology, Hydrogeology, Geology & Soils will be Catherine Isherwood from RSK. Catherine is a Chartered Geologist with an MA and PhD in Geological Sciences and an MSc in Hydrogeology. She has over 14 years' experience in environmental impact assessment, specialising in hydrology, hydrogeology, geology and soils assessments and the associated specialist assessments, such as peat slide and private water supply risk assessments. During her career, Catherine has worked on over 30 windfarm projects in the UK.

Catherine will be supported by a team of geologists, hydrogeologists and hydrologists with experience in environmental impact assessment within Scotland and the wider UK.

Baseline

The underlying geology identified by the British Geological Survey's online mapping¹ is the Spital Flagstone Formation and the Mey Flagstone Formation, both part of the Upper Caithness Flagstone Subgroup of the Devonian-age Old Red Sandstone. Both formations are described as sandstone, siltstone and mudstone in varying proportions.

There are no faults recorded on the Site, although some faultlines are present east of the application boundary. There are no mining records for the area and the Site is not in an area with identified coal reserves. Two small former quarries have been identified within the application boundary.

The majority of the Site is underlain by peat deposits and glacial diamicton till. Some small areas are identified as having alluvium deposits, mainly in association with the Burn of Rattar in the western part of the Site. Some areas are indicated to have no superficial deposits present.

Much of the Site lies within an area identified as being peatland of national importance (Class 1) on the SNH Carbon and Peatland database, with the remainder of the Site mainly having the potential for peat with a mixture of peat

¹ GeoIndex Onshore, <http://mapapps2.bgs.ac.uk/geoindex/home.html>

soil and mineral soil from Classes 4 and 5. The Soils map of Scotland further identifies that the Site has mainly dystrophic blanket peat soils with some noncalcareous gleys and alluvial soils.

The proposed Development lies within the Thurso and Wick Coastal Catchment Areas, both in the Scotland River Basin District. The main hydrological catchment for the Site is the Link Burn/Burn of Rattar. Subsidiary catchments are the Burn of Mey, West Burn of Gills and Gill Burn. The Link Burn/Burn of Rattar is classified as having 'Good' ecological status and 'High' water quality. The Gill Burn is classified as having 'Good' ecological status and 'Good' water quality. Chemical data are not available for either waterbody.

The groundwater unit located under the hydrological study area is the Caithness groundwater body. This is classified as having 'Good' chemical status and 'Good' quantitative status.

Part of the Site is designated as Phillips Mains Mire Site of Special Scientific Interest. This site has been designated for its nationally important blanket bog habitat, including an extensive system of dubh lochans.

Although much of the Site is anticipated to be underlain by peat and peaty soils, the presence of forestry across much of the Site means that the peatland may be degraded or damaged. An extensive Site-wide peat depth survey is proposed and will be used to inform the emerging site design.

Potentially Significant Effects

Having regard to the nature of the proposed Development, key baseline characteristics and proposed embedded mitigation measures, it is considered that the following aspects have the potential for significant environmental effects during the construction and operation phases of the proposed Development, and will therefore require further consideration through the EIA process:

- changes to water quality, including sediment release and accidental spillage of contaminants, such as fuel or oils;
- changes to water quantity and flow paths, including installation or modification of watercourse crossing structures;
- temporary and long-term drainage infrastructure;
- changes to private water supplies, either quantity or quality;
- changes (particularly increase) in flood risk;
- changes to groundwater quality and flow paths;
- changes to the connection between groundwater and surface water, including potential reduction in baseflow to surface watercourses or groundwater-dependent habitats;
- changes to water supply to Groundwater-Dependent Terrestrial Ecosystems (GWDTE);
- modifications to peatland including peat slide risk, if relevant;
- damage to soils and peat from traffic movements and from handling, transport and storage of excavated material;
- soil and peat erosion; and
- potential cumulative and in-combination impacts during construction.

Proposed Assessment Methodology and Approach

The assessment of likely significant effects will be undertaken through desk-based characterisation of the Site and surrounding area, and of likely effects on identified receptors. The desk study will be supported by a programme of field investigations.

The assessment method will be informed by the project team's experience of undertaking such assessments for renewable energy developments, their knowledge of peatland, geology and the water environment characteristics in Scotland, and knowledge and understanding of good practice. The assessment will be carried out by hydrological, geological and geotechnical specialists, in close liaison with project ecologists and other members of the EIA project team, to ensure that a robust and proportionate impact assessment is presented.

A desk study will be undertaken to determine and confirm the baseline characteristics by reviewing available information relating to hydrology, hydrogeology, geology and soils, such as groundwater resources, licensed and unlicensed private water supply abstractions, any public and private water supplies, surface water flows, flooding, rainfall data, water quality and soil data. This will include a review of published geological mapping, OS maps, aerial photography and site-specific data including site investigation data, geological and hydrogeological reports, digital terrain model data and derived slope information, and geological literature.

A walkover and reconnaissance survey will be undertaken to:

- verify information gathered during the desk study;
- undertake a visual assessment of the main surface watercourses, and any relevant private water supplies and supply sources;
- identify drainage patterns, areas vulnerable to erosion or sediment deposition, and any pollution risks;
- visit any identified potential GWDTE (in consultation with the ecology team) to identify any groundwater linkages;
- prepare a schedule of potential watercourse crossings; and
- allow an understanding of the Site and its setting, including slope variation, any potential borrow pit locations, planned access routes, and variation in ground conditions, and to assess the relative location of the planned components of the proposed Development.

In addition to the walkover and reconnaissance survey, a Phase 1 peat depth survey will be undertaken. This will cover the proposed developable area with survey points on a 100 m grid to determine the area coverage and depth variation of peat deposits within the area. This information will feed into the design process, to allow areas of sensitive and/or deeper peatland to be avoided where possible.

The study area for the hydrology, hydrogeology, geology and soils assessment will include a standard buffer of up to 2 km from the proposed infrastructure. A cumulative assessment will be undertaken, up to an area of 5 km from the proposed Development, as at greater than 5 km any potential changes to hydrology, hydrogeology, geology and soils are not considered to be discernible.

Peat Slide Risk Assessment

Should significant depths of peat be identified on the Site during the Phase 1 peat depth survey, a Peat Slide Risk Assessment (PSRA) will be undertaken in accordance with Scottish Government guidance² and in consultation with relevant statutory and non-statutory consultees.

The PSRA will comprise a detailed analysis of peat coverage and peat condition across the Site, with a detailed assessment of natural and induced peat slide risk for the proposed frozen infrastructure layout. To inform the assessment, a second phase of peat depth surveying will be undertaken on the frozen layout with peat depth measurements at 50 m centres along access tracks and 10 m crosshair probing at turbine locations. The assessment will include a hazard and slope stability assessment, taking account of factors known to influence slope stability, such as peat depth and slope angle. Management and mitigation measures will be set out on a location-specific basis to manage and control peat slide risk at the Site.

The PSRA will be provided as a technical appendix to the EIA Report, with key findings summarised within the hydrology, hydrogeology, geology and soils chapter.

Outline Peat Management Plan

Should significant depths of peat be identified on the Site, an outline Peat Management Plan (PMP) will be prepared in line with current guidance^{3,4}. This plan will include high-level estimation of the volume of peat requiring excavation and the volumes of peat that can be reused within the Development, including options for peatland restoration. The estimation will make use of peat depth data gathered for the PSRA and will be based on the

² Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments. Scottish Government, April 2017 (2nd Edition).

³ Developments on Peat and Off-Site Uses of Waste Peat. SEPA Regulatory Position Statement WST-G-052, May 2017.

⁴ Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat, and the Minimisation of Waste. Scottish Renewables & SEPA, January 2012.

approximate infrastructure dimensions and anticipated peat reuse streams available within the Development area. In addition to identifying volumes of peat to be excavated and reused, the assessment will provide proposed peat management and handling plans for best practice handling, storage and transportation of peat between excavation and reuse or reinstatement.

The PMP will be provided as a technical appendix to the EIA Report, with key findings summarised within the hydrology, hydrogeology, geology and soils chapter.

Issues to be Scoped In or Out

It is considered that the identified aspects listed below have no potential for significant environmental effects and can therefore be scoped out with respect to detailed assessment in the EIA:

- Detailed Flood Risk Assessment: Published mapping confirms that most of the Site is not located in an area identified as being at risk of flooding. It is proposed, therefore, that a high-level screening of potential flooding sources (fluvial, coastal, surface water, groundwater etc.) is presented in the EIA Report, and measures that would be used to control the rate and quality of surface runoff will be specified in the Construction Environmental Management Plan (CEMP).
- Water quality monitoring: As the assessment will be informed by watercourse classification data available from SEPA's website and there are no known sources of potential water pollution at the Site, no additional water quality monitoring is considered necessary at this stage. Recommendations for construction-phase monitoring will be provided in the CEMP.
- Potential effects on geology: There are no protected geological features within or near the Site. In addition, the nature of the activities during construction and operation of the proposed Development would be unlikely to alter the regional geology of the Site.
- Increased flood risk arising from restrictions to flow in watercourses during operation and maintenance of the proposed Development: All watercourse crossings required to be installed for the Development would be subject to a regular inspection and maintenance plan. In addition, flood risk on and downstream of the Site is low, development design would ensure that watercourse crossing structures are designed to a suitable flow capacity and would ensure that no critical infrastructure is located near a watercourse or waterbody.

The identified aspects listed below are considered likely to require detailed assessment in the EIA:

- GWDTE: The presence of a SSSI designated for peatland habitats within the Development area indicates that potential GWDTE are likely to be encountered within the Site. In addition, there are significant open areas within the forestry where potential GWDTE may have developed. It is considered that this aspect will require assessment, based on the findings of the National Vegetation Classification surveys to be carried out.
- Peat Slide Risk and Peat Management: Given the widespread published mapping of peatland and peaty soils across the proposed Development, peat surveys and the associated peat slide risk and peat management are considered to be necessary assessments for the proposed Development.

Consultees

The consultees below will be approached for information to inform the EIA. These consultees may also be contacted by the Scottish Government regarding the scope of the EIA:

- The Highland Council, Flood Risk Management
- SEPA
- Scottish Natural Heritage

Consultee Questions

- Is the spatial extent of the study area considered to be appropriate?
 - Do consultees have any information that would be useful in the preparation of a hydrology, hydrogeology, geology and soils assessment?
 - Do consultees agree that the scope of the flood risk assessment is appropriate, and that a drainage impact assessment can be provided as part of the detailed site design and agreed as part of the site CEMP (noting the principles for control and management of runoff will be presented in the EIA Report)?
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- Please confirm any additional requirements that you consider should be included in this part of the EIA, that have not been covered in this factsheet.

Relevant Policy and Guidance

The assessment will be undertaken in accordance with the following relevant legislation and guidance:

- EC Water Framework Directive (2000/60/EC).
 - Water Environment and Water Services (Scotland) Act 2003.
 - Water Environment (Controlled Activities) (Scotland) Regulations 2011, as amended.
 - The Highland Council, (2012). Highland-wide Local Development Plan (HwLDP)..
 - Scottish Environment Protection Agency, (2017). Land Use Planning System Guidance Note 31: Guidance on Assessing Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems, version 3.
 - Scottish Renewables, Scottish Natural Heritage, Scottish Environment Protection Agency, Forestry Commission Scotland, Historic Environment Scotland, Marine Scotland Science and AEECoW joint publication, (2019). Good Practice during Wind Farm Construction, 4th Edition.
 - CIRIA (2006). Publication C648: Control of water pollution from linear construction projects. Technical Guidance.
 - CIRIA (2015). Publication C741: Environmental good practice on site, 4th Edition.
 - Scottish Government guidance, (2017). Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments, 2nd Edition.
 - Scottish Government guidance, (2017). Guidance on Developments on Peatland: Peatland Survey.
 - The Highland Council, (2018). Caithness and Sutherland Local Development Plan (CaSPlan).
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Forestry

Background

Pre-application advice for the proposed Development was requested from the Highland Council (THC) and a response provided in March 2019. Key aspects in relation to forestry are summarised here.

THC has stated that “*key-holing must be used wherever possible as large scale felling can result in large amounts of waste material and in a peak release of nutrients which can affect local water supply*”. They also state that “*clear felling may be acceptable only in cases where planting took place on deep peat and it is proposed through a habitat management plan to reinstate peat-forming habitats*”. The Pre application advice provided by THC also states that “*We would expect forestry removal to enable peatland restoration by reinstating forestry to bog habitat where appropriate*”

THC also identified that the Site contains areas of blanket bog listed as Class 1 peatland. The survey of peat being carried out by RSK will establish how much damage to the peat has been caused by the forestry plantations and how much (if any) of the Site would benefit from reinstating to an area of peatland. Once this is known, it will be possible to calculate the area of the plantations that need to be felled. This will clearly have a direct bearing on the amount of compensation planting that may be needed to comply with the Scottish government’s policy on felling as set out in their publication – ‘Control of Woodland Removal’

This Site is largely stocked with middle aged conifers and the aim will be to carry out keyhole felling to accommodate the turbines wherever possible to avoid adverse environmental impacts; this will also minimise both the amount of felling and the area of Compensation Planting (CP) that may be required. It is thought that keyhole felling as opposed to the alternative of clear felling will not have too great an impact on turbine efficiency.

A complete forestry assessment will be carried out to provide the information required by THC and to provide all the necessary advice and information, including a complete assessment of the growing stock and the volume of timber that would need to be felled, as required for the EIA.

Consultant Experience and Expertise

The technical lead for Forestry will be Roy Dyer from RSK. Roy is a Chartered Forester and is the Director of the arboriculture and forestry team. Before joining the company, Roy was the Head Forester on a 1,000ha forestry estate on the borders of Devon and Cornwall – The Tavistock Woodlands Estate owned by the Earl of Bradford.

Roy is a highly experienced forester and nationally recognised consultant in forestry management. With over 50 years’ experience Roy covers all aspects of forestry management. He currently specialises in providing operational and policy advice to electricity Distribution Network Operators including Scottish Power Energy Networks and Scottish and Southern Energy. Roy also has considerable experience in providing technical forestry support for RSK’s EIAs in relation to windfarms and other renewable energy projects.

Baseline

The Site extends to 9186hectares approximately and is comprised largely of mid rotation commercial forestry plantations. The aerial view shows that there is also a considerable amount of open moorland intermixed with the plantations. In the northern part of the woodland there is also some areas classed as wet woodland, upland birchwood and acid grassland and the Site also includes a Site of Special Scientific Interest (SSSI).

Forestry Scotland’s map viewer shows that Woodland Grant Scheme applications were made in 1993, 1994 and 1995 covering most of the Site. The applications are all now closed and there is very little information other than the information on the two separate WGS2 applications and the WGS3 application:

- WGS2 Application made in 1993 on behalf of Phillips Mains covering the northern section. This application was approved for woodland establishment.
 - WGS2 Application made in 1994 on behalf of Phillips Mains (property name) covering the NE section that surrounds the SSSI. This application was for “approved re-stocking and/or management”.
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- WGS3 Application made in 1995 on behalf of Phillips Mains covering the southern section. This application was also for woodland establishment.

Although there is no information on the species planted at present, it is assumed that the species is wholly or mainly Sitka spruce as this is the commercial species most suitable for the Site. If the trees were planted in the year the WGS applications were made, they would now be 25 – 27 years old, which means they are middle aged plantations that are half way through a normal commercial rotation.

In 2019 an application was made to Scottish Forestry to clear fell 52.22 ha of what was presumably mature conifer plantation woodlands in the corner of the woodland between the SSSI and the Hill of Rifiga. This area is now either about to be felled, waiting to be planted or recently planted.

Within the Site there is also the Phillips Mains Mire SSSI designated for its blanket bog habitat.

As regards Scottish Forestry, the Site is within the Highlands and Islands Conservancy, Woodlands, Fodderty Way, Dingwall, IV15 9XB.

Potentially Significant Effects

There are four key effects in relation to the tree felling that would be required to accommodate the wind turbines:

- 1) The tree clearance would involve the felling of trees prematurely. This would result in a loss of Net Present Value for the landowner
- 2) Once the windfarm has been designed and the locations of the turbines is known, it will be possible to establish the area of tree clearance and the volume of timber that would be removed.
- 3) The peat survey is expected to confirm what damage the plantations have caused to the peatland and what opportunity there is to clear-fell trees and reinstate peatland.
- 4) Consideration will need to be given towards what CP is required. The area of CP will depend on:
 - a) Whether the restoration of peatland can form part or all of the CP commitment or
 - b) Whether peatland restoration will not be proposed and the full area of CP is required.

Any felling would affect the structure of the woodland and the landowners forestry management plans including production forecasts which would need to be amended accordingly.

The effect of the felling on the stability of the plantations will also be assessed. This will be carried out using the Forestry Commissions Forest GALES wind risk decision support tool. All opportunities to mitigate the effect of windblow on the retained plantations will be explored and would be adopted wherever possible.

Proposed Assessment Methodology and Approach

A more detailed desk study will be carried out in the first instance. This will include reference to the National Forest Inventory Woodlands. There appears to be no formal management plan that has been submitted to Scottish Forestry, but if any existing forestry management plans are available, the data will be analysed and recorded as necessary.

A full site inspection will be carried out. Part of the assessment will involve the collection of sufficient data to enable calculations to be made on the volume and quality of timber to be removed. This will include noting the tree species present, measuring sufficient top heights of the trees to establish the yield classes of the plantations and taking relascope sweeps within the plantations to establish the stocking density.

Some of the mensuration information will be fed into the Forestry Commission's wind risk support tool along with other information, such as grid reference, soil type, edge effect etc. and this will confirm the level of wind risk, which will have a direct bearing on the felling plans.

The inspection will also investigate whether there are any areas within the Site that could be planted up if compensation planting is required.

Consideration will also be given to the environmental effect of the tree felling including how best to dispose of the residues.

All advice and any subsequent forestry work undertaken will fully comply with the UK Forestry Standard and guidelines and all other relevant legislation.

Discussions will be held with the landowner/landowner's agent, THC Forestry Officer and Forestry Scotland as required.

A forestry appendix or chapter for the EIA will be prepared. In accordance with the Highland Council's requirements, the forestry technical appendix/chapter will include:

- a) A map demarcating the areas to be subject to different felling techniques.
- b) Photography of general timber condition in each of these areas.
- c) A table of approximate volumes of timber that would be removed from site and volumes, sizes of chips or brash and depths that would be re-used onsite.
- d) A plan showing how and where any timber residues would be re-used for ecological benefit within that area, supported by a Habitat Management Plan.

Issues to be Scoped In or Out

If a sub-compartment plan is available, we will make full use of the information. However, if a sub-compartment plan is not available, we do not consider that it is necessary to create one as we will have sufficient information for the EIA from the site survey and other sources of information, such as the Scottish Forestry Map Viewer, the National Forestry Inventory Woodlands, aerial photographs etc.

We will include a full assessment in relation to the forest removal and forest waste, taking into account the following advice from the Highland Council:

- Key-holing must be used wherever possible as large-scale felling can result in large amounts of waste material and in a peak release of nutrients, which can affect local water quality. If clear felling is unavoidable then the potential impact this will have on water quality will be considered in the water quality assessment as part of the hydrology, hydrogeology, geology and soils section of the EIA.
- Clear felling may be acceptable only in cases where planting took place on deep peat and it is proposed through a Habitat Management Plan to reinstate peat-forming habitats.

Consultees

The consultee below will be approached for information to inform the EIA. This consultee may also be contacted by the Scottish Government regarding the scope of the EIA:

- Scottish Forestry
- The Highland Council

Consultee Questions

- Do consultee agree with the proposed methodology and scope of the forestry assessment?
- Do consultees have any information that should be taken into account within the forestry assessment?
- Please confirm any additional requirements that you consider should be included in this element of the EIA, that have not been covered in the fact sheet

Relevant Policy and Guidance

The assessment will be undertaken in accordance with the following relevant legislation and guidance:

- Scottish Executive (2006) Scottish Forestry Strategy
 - The Highland Council (2018) Highland Forest and Woodland Strategy
 - Forestry Commission (1996) Technical Paper 16: Designing Forest Edges to Improve Wind Stability
 - Forestry Commission (2009) The Scottish Government's Policy on Control of Woodland Removal
 - Forestry Commission (2015) Guidance to Forestry Commission Scotland staff on implementing the Scottish Government's Policy on Control of Woodland Removal
 - The Highland Council (2013) Trees, Woodlands and Development supplementary guidance
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- Scottish Environment Protection Agency (2014) Land Use Planning System SEPA Guidance Note LUPS-GU27 – Use of Trees Cleared to Facilitate Development on Afforested Land
 - Forestry Commission (2017) The UK Forestry Standard – The Government’s Approach to Sustainable Forestry
 - Forestry Commission (1981) Yield Models for Forest Management
 - Forestry Commission Scotland. Pers.com. email from Donald MacLeod, Woodland Officer, dated 24/01/19
 - Forestry Commission Scotland. Pers.com. email from Agata Baranska, Regulations & Development Manager, dated 24/01/19
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Access, Traffic and Transport

Background

Pre-application advice for the proposed Development was requested from the Highland Council (THC) and a response provided in March 2019. Key aspects relating to traffic and transport are summarised here.

THC identified that their Transport Planning team's interest will relate largely to the impact of development traffic during the construction phase of the project, which may include the impact on road carriageway, verges and associated structures, and impact on road users and adjacent communities. A Transport Assessment (TA) or a section on traffic and transport within the EIA for the project will be required. This should identify all roads likely to be affected by the various stages and consider in detail the impact of development traffic on these roads. Where necessary, the TA should consider and propose measures to mitigate the impact of the development e.g. the use of onsite borrow pits, concrete batching plant, new or improved infrastructure, road safety measures and traffic management including a framework Construction Traffic Management Plan, and Section 96 'wear and tear' agreement. Justification for the Port of Entry and the preferred route for AIL's shall be clearly demonstrated, including details of alternative routes, swept path assessment and consideration of road structures along the route (which was echoed by Transport Scotland who contributed to the pre-application consultation response). Lastly, the cumulative impact with any other developments in progress or committed should also be considered in the TA.

Consultant Experience and Expertise

The technical lead for Access, Traffic and Transport will be Jon Hassel from RSK. Jon is an associate director at RSK responsible for transport planning. Jon graduated with Bachelor of Engineering degree with Honours in Civil & Transportation Engineering. He has 27 years of experience in development transport and transportation engineering, working for both private and public sector clients. Jon has particular expertise in the preparation of transport related input to EIA for planning and Section 36 applications, preparing development transport statements/assessments, providing assistance in negotiation of planning agreements, carrying out junction and road network assessment and design, access appraisals, and providing master plan advice.

Jon will be supported by a team of specialists with experience in the preparation of transport related input to EIA for Section 36 applications within Scotland and the wider UK.

Baseline

The Site (area within the application boundary) is located approximately 8 km south west of John o' Groats and 16 km east of Thurso. The predominant land use on the Site is forestry with some agricultural use and Stroupster and Lochend operational windfarms are located within the vicinity of the Site.

Access to the Site is by way of a mixture of trunk, principal local and minor roads. While most of the potential routes to the Site will have been subject to assessments for delivery of abnormal loads for windfarms in the relatively recent past, none have been considered for the transport of blades greater than 55 m in length

A route access study will be undertaken using the Ports of Scrabster and Wick, developing on an initial route options study that has been undertaken.

Potentially Significant Effects

The main potential sources of impact are likely to relate to the transportation of abnormal loads and the impact of construction traffic on residential areas and other amenities along the network. The construction phase of the proposed Development is likely to create the greatest environmental impact. This is because of the number of heavy goods vehicles (HGVs), light goods vehicles (LGVs) and abnormal load deliveries required to transport the materials onto site.

It is anticipated that any effects predicted to result during the operation of the proposed Development would be limited, and certainly lower than the effects expected during the construction phase. During operation the proposed Development would generate a negligible number of vehicle movements. These would predominantly be for maintenance visits by technicians. Abnormal load vehicle access is unlikely but may be needed if a turbine component requires replacement.

Proposed Assessment Methodology and Approach

A traffic, transport and access assessment will be undertaken as part of the EIA for the proposed Development. The assessment will be carried out in accordance with the relevant policy and guidance documents as detailed at the end of this scoping chapter.

The study area for the assessment will focus on the routes to be used for access by construction vehicles and abnormal loads. A full assessment of the access route within the study area will be included within the EIA Transport Chapter, including identification of key pinch points along the route and assessment using swept path analysis. Due to known existing pinch points being found along the public road network, a Blade Lift Adapter vehicle will likely be required to transport blades through these pinch points. Further information will be provided within the EIA Report regarding the logistics and safety protections in relations to this method on the public highway.

It is anticipated that any effects predicted to result during the operation of the proposed Development would be limited, and certainly lower than the effects expected during the construction phase, and therefore scoped out of the access, traffic and transport assessment.

Desk Study

A desk-based review of the impacts arising from the construction of the proposed Development will be undertaken, including the following:

- Collection and analysis of available road traffic accident data over the study area;
- The use of a blade lift adapter will be considered for the transport of the turbine blades on any particularly constrained section of the routes to the Site. Any predicted impacts associated with this type of transport will be included in the access and traffic assessment and within other environmental and technical assessments as required;
- Determination of a construction phase programme and quantification of construction phase trips based on the quantity of material required for the proposed Development and the duration of the construction phase;
- Determination of a traffic baseline, taking account of measured existing traffic flow and other developments that have been identified for inclusion within the cumulative assessment; and
- Quantification of material increases in traffic resulting from the construction phase of the proposed Development.

Field Surveys

A visual inspection of the study area will be completed to ensure a full understanding of the local area and to identify all sensitive receptors, especially regarding abnormal loads. 24-hour automatic traffic counts (ATCs) data will be obtained from the Department for Transport, Transport Scotland or The Highland Council. This data will be supplemented by additional ATC surveys to fill any gaps in the information gleaned from the Roads Authorities.

Assessment of Effects

It is anticipated the collated traffic flow data will confirm existing traffic levels within the study area and will include LGVs and HGVs. These traffic flows will be combined with the forecast levels of proposed Development traffic to identify the likely significant effects within the study area in relation to the IEMA Guidelines.

In accordance with the IEMA Guidelines, the method used for assessing environmental effects of the increased traffic will be based on a comparison in percentage terms between predicted traffic flows on potentially affected roads with and without the proposed Development traffic. The IEMA Guidelines express two 'rules' that should be followed when determining the scale and extent of the assessment, these are:

- Rule 1: include highway links where traffic flows would increase by more than 30 % (or the number of heavy goods vehicles would increase by more than 30%); and
- Rule 2: include any other specifically sensitive areas where traffic flows have increased by 10% or more.

Rules 1 and 2 will be used as a screening tool to determine if a full assessment on routes within the study area is required owing to the level of increase in traffic flows. In the case of construction traffic, where it is anticipated that

traffic volumes do not increase by more than 30% (or 10% in sensitive locations) then a detailed assessment of the effects is not deemed necessary.

Construction

In the event that these thresholds are likely to be exceeded, consideration of the environmental effects of construction traffic would typically be undertaken in relation to the following transport impacts:

- severance;
- driver delay;
- pedestrian delay and amenity
- accidents and safety; and
- hazardous loads.

Where relevant, consideration of noise effects of traffic would be included within the Noise chapter of the EIA Report.

In addition to this, the overall carrying capacity of the road in question will be considered in undertaking the assessment. A quantitative assessment of impact would be undertaken, based on the predicted rise in traffic flows against a measured baseline, considering the temporary nature of the works. The likely 'worst case' scenario will be described for the periods of peak traffic generation, with the daily numbers of vehicle movements predicted.

The assessment will identify the potential traffic and associated environmental impacts on sensitive receptors and mitigation will be proposed where necessary. Traffic flows would increase on routes used for access to the Site and stretches of the local road network may need to be closed to facilitate the delivery of abnormal loads. The construction phasing and vehicle access would be managed to ensure that flows would be controlled during periods of more significant disruption, with mitigation likely to take the form of a construction traffic management plan (CTMP).

Cumulative Effects

The anticipated cumulative effects of the potential for overlapping construction programmes for the proposed Development in addition to other development proposals will be considered. The mechanism for mitigation of any cumulative effects is the implementation of a CTMP. It should be noted that a cumulative assessment in relation to transport and traffic is reliant on the prospect of more than one major development being under construction at the same times as the proposed Development.

Mitigation

Mitigation measures will be proposed following the completion of the impact assessments, as informed by baseline assessments. The purpose of these measures is to remove, minimise or compensate any significant effects where required. These mitigation measures will be agreed with The Highland Council or Transport Scotland as appropriate. These measures will also be incorporated into the framework CTMP that will be submitted with the application.

Issues to be Scoped In or Out

It is considered that operational phase traffic impacts have no potential for significant environmental effects and can therefore be scoped out with respect to detailed assessment in the EIA:

Consultees

The consultees below will be approached for information to inform the EIA. These consultees may also be contacted by the Scottish Government regarding the scope of the EIA:

- Transport Scotland
 - THC Transport Development Officer
-

Consultee Questions

- Do consultees agree with the proposed methodology and scope of the access, traffic and transport assessment?
- Are there any planned road works or highway improvement schemes that we need to take account of?
- Is the available Department of Transport, The Highland Council or Transport Scotland Count Data on the road network suitable for the assessment or would we need to plan to undertake traffic surveys?
- Please confirm any additional requirements that you consider should be included in this element of the EIA, that have not been covered in this scoping note.

Relevant Policy and Guidance

The access, traffic and transport assessment will be carried out in accordance with the relevant legislation, guidance and policy documentation including the following:

- The Highland Council, (2012). Highland-wide Local Development Plan (HwLDP)
 - The Highland Council, (2018). Caithness and Sutherland Local Development Plan (CaSPlan)
 - Institute of Environmental Management and Assessment, (1993). The Institute of Environmental Assessment's Guidelines for the Environmental Assessment of Road Traffic
 - Department for Transport, (2008). Design Manual for Roads and Bridges (DMRB), Volume 11, Section 2 (Part 5, LA 104)
 - Scottish Executive, (2005). Planning Advice Note (PAN) 75: Planning for Transport
 - Institution of Highways and Transportation (IHT), (1994). Guidelines for Traffic Impact Assessment
 - Transport Scotland, (2012). Transport Assessment Guidance (TAG)
 - Scottish Government, (2010). Scottish Planning Policy (SPP)
 - The Highland Council, (2013). Guidelines for New Development Roads (GNDR)
 - The Highland Council, (2012). Highland-wide Local Development Plan (HwLDP)
 - The Highland Council, (2018). Caithness and Sutherland Local Development Plan (CaSPlan).
-

Cultural Heritage and Archaeology

Background

Pre-application advice for the proposed Development was requested from the Highland Council (THC) and a response provided in March 2019. Key aspects relating to cultural heritage and archaeology are summarised here.

THC Historic Environment Team (HET) identified that the Site (the area within the application boundary) contains some undesignated features of historic interest. These consist of the remains of historic land-use, such as farmsteads, sheepfolds and areas of shieling settlement. Many other sites, including prehistoric settlement are recorded across the wider area and there remains the potential for further features or remains of prehistoric or later date to be present. Overall, direct impacts to cultural heritage are not considered by HET to be a significant constraint in this case.

HET do note that several important historic features in the wider area may have their setting adversely impacted by a development in the location proposed.

HET request that the Cultural Heritage chapter of the EIA Report (EIAR) be undertaken by a professional and competent historic environment consultant. The chapter will follow Highland Council Standards for Archaeological Work, specifically Section 4, which deals with Environmental Statements, and Section 3 which deals with, amongst other topics, desk-based assessment and walkover surveys.

HET stipulate that the assessment includes a walkover survey of the development area (including any land required for any and all associated infrastructure such as access tracks, cable routes, substations, construction compounds and laydown areas). The assessment will consider the potential for direct, indirect, and cumulative impacts to cultural heritage as a result of the proposed Development. Where indirect impacts are predicted, these will be illustrated using photomontage and/or wireline visualisations.

Where impacts are unavoidable, HET expect detailed discussion of the methods proposed to mitigate impacts, including both physical (i.e. re-design) and where appropriate, compensatory/off-setting mitigation.

Historic Environment Scotland (HES) also contributed to the pre-application advice. HES's remit is to comment where proposals might impact upon the fabric and/or setting of designated historic features.

HES confirm that there are no scheduled monuments, category A listed buildings, Inventory gardens & designed landscapes (GDLs) or battlefields within the proposed Development application boundary. Significant direct physical impacts on assets within their remit are therefore unlikely.

HES do note several designated historic environment assets in the surrounding area potentially subject to significant adverse impacts on their setting. These include the scheduled monuments of Earl's Cairn (SM449) and Thomsonfield broch (SM558), the Category A Listed Castle of Mey (LB1797) and its estate and grounds, the Inventory Garden and Designed landscape, Castle of Mey (Barrogill Castle) (GDL96).

HES recommend the use of visualisations to illustrate potential effects upon these assets and recommend that cumulative effects upon these (and other designated heritage assets) be assessed.

Consultant Experience and Expertise

Since 2000, Headland Archaeology (now part of the RSK Group) has developed substantial expertise in the design, management and completion of challenging archaeological projects, including Environmental Impact Assessments.

Headland is a Registered Organisation with the Chartered Institute for Archaeologists (CIfA) and abides by its standards and codes of conduct. Headland has been independently assessed under the Achilles UVDB Verify audit and assessment service, which focuses on risk critical issues and provides demonstrable compliance to Safety, Health, Environment and Quality requirements.

The technical lead for Cultural Heritage is Tom Janes MA(Hons) MCIfA. Tom is a consultancy project manager at Headland Archaeology with over 16 years' experience working in cultural heritage consultancy.

Tom will be supported by a team of specialists with experience in the preparation of heritage related input to EIA for Section 36 applications within Scotland and the wider UK.

Baseline

The Baseline used for this scoping section has been compiled using existing data on the historic environment available online from Historic Environment Scotland (HES) via the Canmore database and the Pastmap website, and designations data available as GIS datasets from the HES website.

Study Area

Two study areas have been used for the identification of heritage assets that may be affected by the proposed Development: The Inner Study Area and the Outer Study Area.

The Inner Study Area (ISA) corresponds to the extent of the Site.

The Outer Study Area (OSA) extends to at least 20 km from the proposed turbines, which is taken as the maximum extent of potentially significant effects on the settings of heritage assets. Heritage assets beyond 20km will be included in the assessment if they are determined (in the opinion of the assessor and/or consultees) to be of particular sensitivity. Within the OSA, assets will be included in the assessment based on the level of importance assigned to the asset (defined in the EIAR Methodology), to ensure that all significant effects are recognised:

- Up to 2 km from proposed turbines: Category C Listed Buildings, and any undesignated asset of local importance that has a wider landscape setting that contributes substantially to its cultural significance.
- Up to 5 km from proposed turbines: all assets of national or regional importance, including Scheduled Monuments, Category A and B Listed Buildings, Conservation Areas, Inventory Gardens and Designed Landscapes, Inventory Historic Battlefields and undesignated assets of more than local importance.
- At least 20 km from proposed turbines: any asset that is considered exceptionally important, and where long-distance views from or towards the asset are thought to be particularly sensitive, in the opinion of the assessor or consultees. Beyond 5 km, the baseline will be screened (and agreed with consultees) to identify any assets of particular sensitivity or importance.

The Inner Study Area

There are no designated heritage assets recorded within the ISA (Figure 4.1). A study of the Pastmap website and the Canmore database has identified at least four undesignated heritage assets recorded within the ISA. These comprise two farmsteads, a fish house and some shieling huts. None of the Canmore entries have been securely dated. The THC Historic Environment Record (HER) as depicted on Pastmap also records some entries within the ISA, but the Pastmap data does not represent the current version of the HER.

The Outer Study Area

There are several designated heritage assets within 5 km of the application boundary (Figure 4.2). These include seven Scheduled Monuments and nine Listed Buildings. The Scheduled Monuments comprise two prehistoric cairns, an Iron Age broch, a prehistoric fort with a later chapel within it, a church, a deserted township and a modern coastal battery. The Listed Buildings comprise two Category A, six Category B and one Category C Listed Buildings.

Between 5 km and 20 km of the Site, there are 95 Scheduled Monuments; 13 Category A Listed Buildings; two Conservation Areas, and four Inventory Garden and Designed Landscapes (IGDL).

There are no Inventory Historic Battlefields or World Heritage Sites in the OSA.

The Scheduled Monuments between 5 km and 20 km from the Site comprise; 45 prehistoric brochs, forts, enclosures and/or settlements; 28 prehistoric ritual or funerary monuments; eight medieval and post-medieval ecclesiastical and ritual sites; eight medieval and post-medieval secular and industrial structures and settlements, and six sites relating to military activity. One of the Scheduled Monuments is also a Property in Care of Scottish Ministers.

The Listed Buildings comprise a mixture of country houses and estate buildings, churches, industrial and maritime buildings, and military structures. Five of the Category A Listed Buildings are within 10 km of the proposed Development.

The Conservation Areas are west and south of the Site and comprise the towns of Thurso and Wick respectively.

The IGDLs comprise the estates and grounds of the Castle of Mey and Melsetter House. Of these, only the Castle of Mey (GDL96, including one Category A and one Category B Listed Building) is within 10 km of the proposed Development, approximately 1.7 km north of the Site.

Potentially Significant Effects

Effects on the historic environment can arise through direct physical impacts, impacts on setting or indirect impacts:

- Direct physical impacts describe those development activities that directly cause damage to the fabric of a heritage asset. Typically, these activities are related to construction works and would only occur within the application boundary.
- An impact on the setting of a heritage asset occurs when the presence of a development changes the surroundings of a heritage asset in such a way that it affects (positively or negatively) the cultural significance of that asset. Visual impacts are most commonly encountered but other environmental factors, such as noise, light or air quality can be relevant in some cases. Impacts may be encountered at all stages in the life cycle of a development from construction to decommissioning but they are only likely to lead to significant effects during the prolonged operational life of the development.
- Indirect impacts describe secondary processes, triggered by the development, that lead to the degradation or preservation of heritage assets. For example, changes to hydrology may affect archaeological preservation; or changes to the setting of a building may affect the viability of its current use and lead to dereliction.

Inner Study Area

There are no designated heritage assets within the ISA, and the known undesignated assets that exist are not considered to be of greater than Low importance. Although some or all of the undesignated heritage assets could be subject to direct impacts such impacts could be mitigated through design, micro-siting or other measures, and no significant direct, indirect or cumulative effects are anticipated within the ISA.

Outer Study Area

No direct impacts are predicted within the OSA.

Within 5km of the turbines, two scheduled monuments (SM449, Earl's Cairn and SM588, Thomsonfield Broch) and the Castle of Mey IGD (GDL96) are considered to be at risk of potentially significant operational effects.

Although there are several other designated heritage assets within 5km of the turbines, they do not, at present, appear to be particularly sensitive to any change in views towards the Site and no significant operational effects are anticipated.

Proposed Assessment Methodology and Approach

This Cultural Heritage and Archaeology Information Sheet is intended to identify potential effects of the proposed Development upon the physical fabric and settings of heritage assets within the Site, and potential effects on the settings of assets within the wider landscape.

The 'cultural heritage' of an area comprises archaeological sites, historic buildings, gardens and designed landscapes, historic battlefields and other sites, features or places in the landscape that have the capacity to provide information about past human activity, or that have cultural relevance due to associations with folklore or historic events. Sites of cultural heritage interest may also derive some, or all, of that interest from their 'setting' within the wider landscape.

Historic landscape is not treated as a heritage asset for the purposes of this assessment except where a defined area of landscape has been designated for its heritage interest (including Conservation Areas and areas included in the Inventory of Gardens and Designed Landscapes). It is recognised that all landscapes have an historic dimension, and this will be considered as part of the assessment of Landscape Character (covered in 05 Landscape and Visual Impact (LVIA), EIA Topic Information Sheet).

It is important to note that, although any effects on the significance of heritage assets due to change in their setting are likely to be visual in nature, the assessment of these visual effects is distinct from the assessment of visual change in the LVIA. The assessment of effects on setting may be informed by visualisations prepared as part of the LVIA but the conclusions reached regarding visual change in the setting of a heritage asset are distinct.

The Cultural Heritage and Archaeology section of the EIAR will characterise the historic environment within the Site and in the wider study area. It will use the results of consultation, desk-based research, walkover surveys and setting visits to define a study area and to assemble a baseline of heritage assets within it, and then to assess the potential effects of the proposed Development on that baseline. Where potential effects are identified, mitigation measures will be suggested.

The baseline of the assessment will be informed by reference to designations data maintained by HES and to the THC HER. A digital extract will be obtained from the HER to ensure that the most up-to-date version of the data is used, and a walkover survey will be undertaken to confirm the presence of known features within the ISA once the layout has progressed and likely infrastructure locations have been identified.

Cultural heritage constraint areas will, where necessary, be defined to include an appropriate buffer around known heritage assets. Constraint areas can be treated as a 'trigger' for the identification of potential direct impacts: they represent areas within which works may lead to direct impacts of more than negligible significance on known heritage assets.

Potential impacts on unknown heritage assets will be discussed in terms of the risk that a significant effect could occur. The level of risk depends on the level of archaeological potential combined with the nature and scale of disturbance associated with construction activities and may vary between high and negligible for different elements or activities associated with a development, or for the development as a whole.

Potential impacts on the settings of heritage assets will be identified from an initial desk-based appraisal of data from HES and the HER and consideration of current maps and aerial images available on the internet. Where this initial appraisal identifies the potential for a significant effect, the asset will be visited to define baseline conditions and identify key viewpoints. Visualisations will be prepared to illustrate changes to key views, where potentially significant effects are identified.

Where potentially significant effects are identified, mitigation measures will be proposed. The preferred mitigation option is always to avoid or reduce impacts through design, or through precautionary measures, such as fencing off heritage assets during construction works. Impacts that cannot be eliminated in these ways would lead to residual effects.

Adverse effects may be mitigated by an appropriate level of survey, excavation, recording, analysis and publication of the results, in accordance with a written scheme of investigation (SPP paragraph 150 and PAN2/2011, sections 25-27). Archaeological investigation can have a beneficial effect of increasing knowledge and understanding of an asset, thereby enhancing its archaeological and historical interest and offsetting adverse effects.

Issues to be Scoped in or Out

It is proposed to scope out:

Direct effects - There are no designated heritage assets within the ISA, and the known undesignated assets that exist are not considered to be of greater than Low importance.

Setting effects associated specifically with the construction phase as this will be relatively short-lived and transitory.

Indirect effects – Assets located outside of the zone of theoretical visibility (ZTV) that also have no viewpoint significant to understanding or interpretation of the asset that includes both the asset and the proposed Development.

Operational effects on Category C Listed buildings outside the Site as these are highly unlikely to be significant.

Operational effects on several other designated heritage assets within 5km of the turbines. These assets do not, at present, appear to be particularly sensitive to any change in views towards the Site and no significant operational effects are therefore anticipated.

Consultees

The consultees below will be approached for information to inform the EIA. These consultees may also be contacted by the Scottish Government regarding the scope of the EIA:

- THC Historic Environment Team;
- Historic Environment Scotland; and
- local archaeological interest groups (as appropriate).

Consultee Questions

- Are Consultees content with the proposed extent of the Study Areas?
 - Are there any other relevant consultees who should be contacted with respect to the Cultural Heritage and Archaeology assessment?
-

- Do consultees have any particular viewpoints or visualisations that they would like to see included in the assessment?

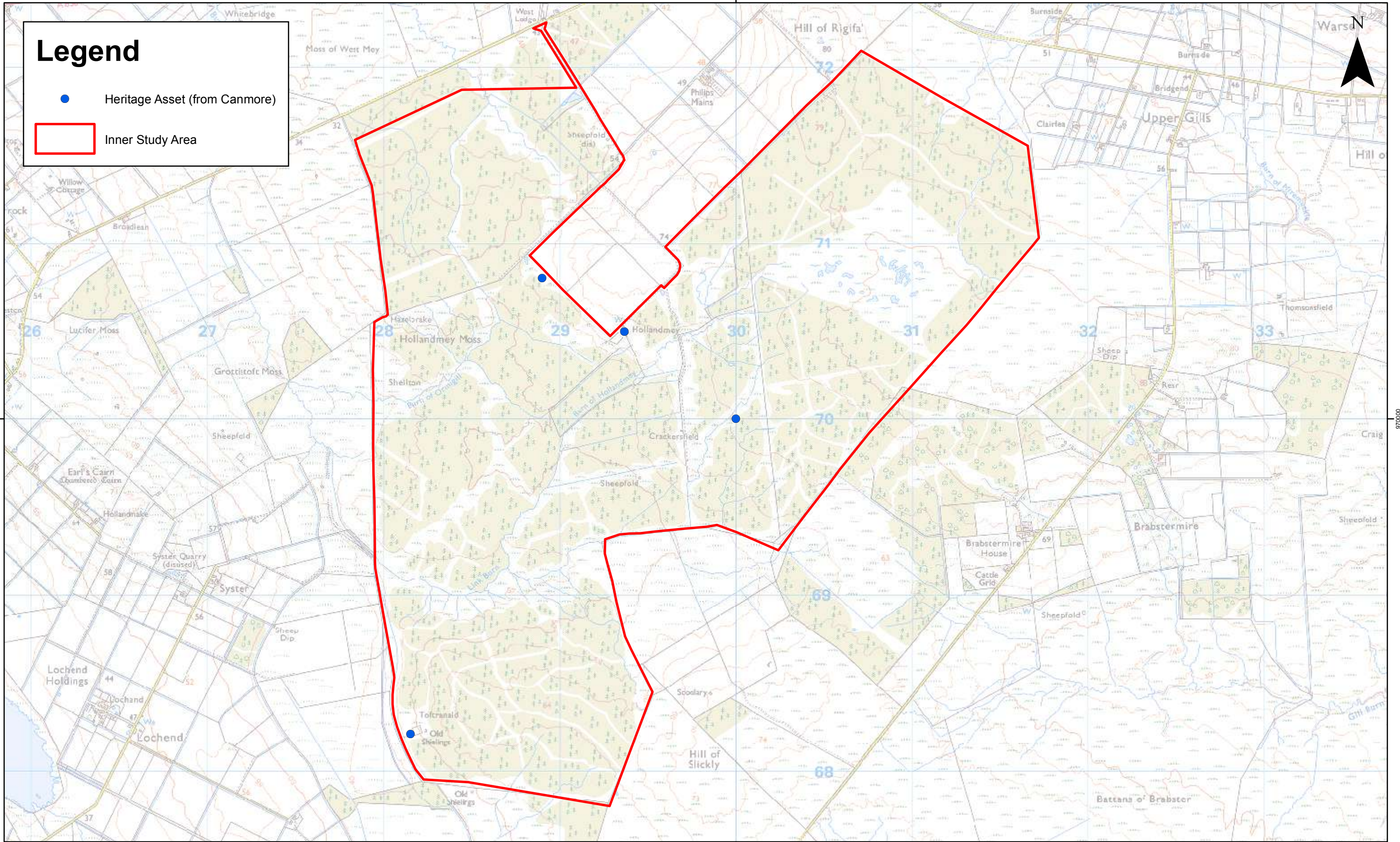
Relevant Policy and Guidance

The assessment will be carried out with reference to the following legislation, policy and guidance:

- The Ancient Monuments and Archaeological Areas Act 1979
 - The Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997
 - The Historic Environment Scotland Act 2014
 - Statutory Instrument No 101 The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017
 - Planning Advice Note (PAN) 2/2011: Planning and Archaeology;
 - Highland-wide Local Development Plan (THC, 2012);
 - Standards for Archaeological Work (THC, 2012);
 - Scottish Planning Policy (SPP) 2014;
 - Standard and Guidance for Historic Environment Desk-Based Assessment (Chartered Institute for Archaeologists (CIfA 2014);
 - Standard and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment (CIfA 2014);
 - Our Place in Time: The Historic Environment Strategy for Scotland (2015);
 - Managing Change in the Historic Environment: Setting (Historic Environment Scotland (HES) 2016);
 - Onshore Wind Energy Supplementary Guidance (THC, 2016) and Part 2b (THC, 2017);
 - Environmental Impact Assessment Handbook: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment Process in Scotland (SNH and HES, 2018);
 - Caithness and Sutherland Local Development Plan (THC, 2018);
 - Historic Environment Policy Scotland (HES, 2019);
 - Historic Environment Scotland Circular (HES, 2019); and
 - Designation Policy and Selection Guidance (HES 2019)
-

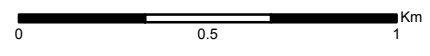
Legend

- Heritage Asset (from Canmore)
- Inner Study Area



Rev	Date	By	Comment
D	14/07/20	TJ	Revised RLB
C	10/07/20	TJ	Revised RLB & base mapping
B	29/06/20	TJ	Revised red line boundary

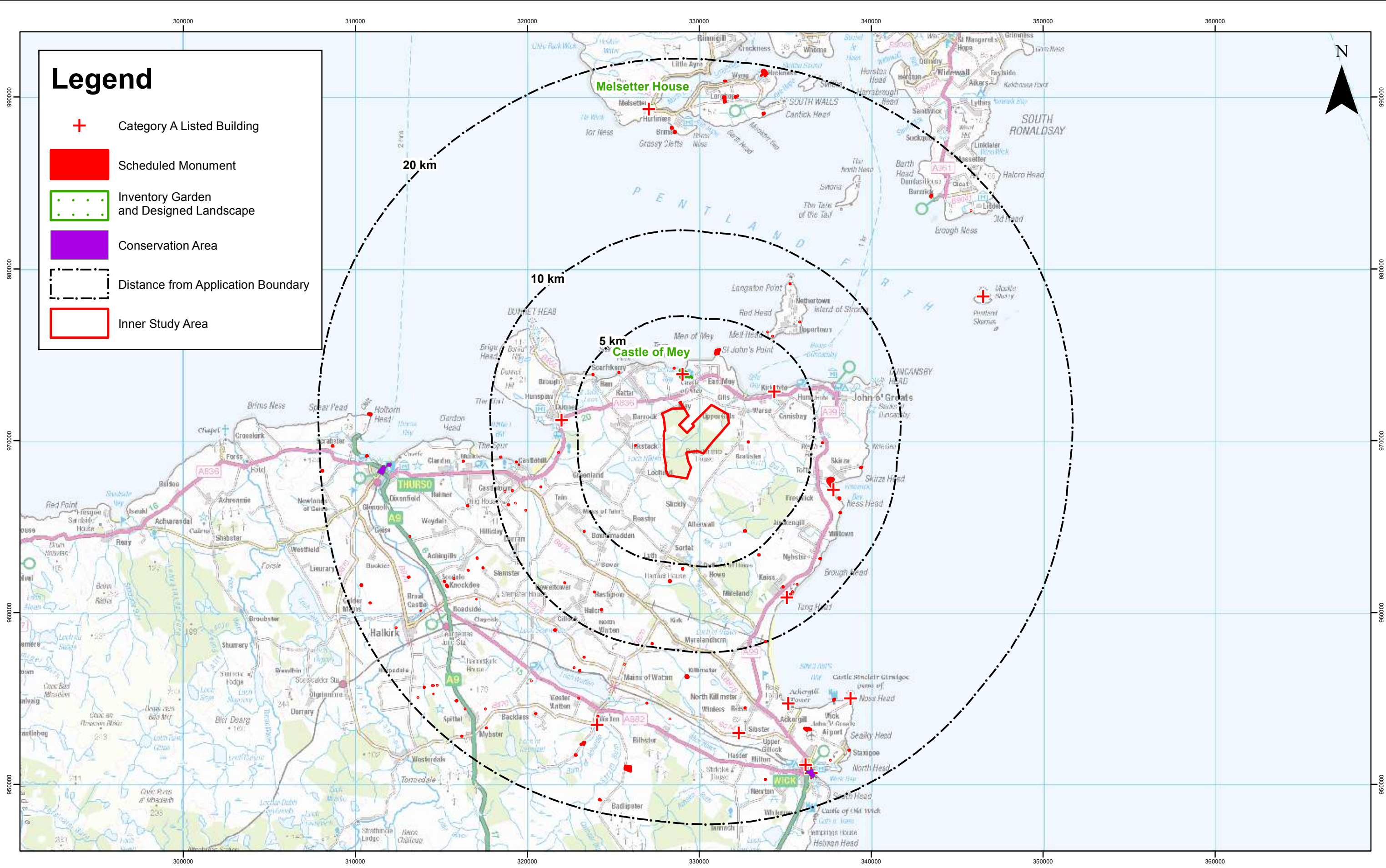
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Hollandmey Renewable Energy Development Heritage Assets in the Inner Study Area

Drg No		
Rev	D	Datum: OSGB36
Date	14/07/20	Projection: TM
Figure	4.1	



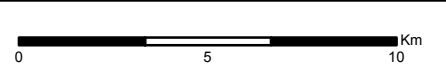
Legend

- + Category A Listed Building
- Scheduled Monument
- Inventory Garden and Designed Landscape
- Conservation Area
- Distance from Application Boundary
- Inner Study Area



Rev	Date	By	Comment
D	14/07/20	TJ	Revised RLB & base mapping
C	14/07/20	TJ	Revised RLB & base mapping
B	29/06/20	TJ	Revised red line boundary

1:200,000
Scale @ A3



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Hollandmey Renewable Energy Development Heritage Assets in the Outer Study Area

Drg No	Rev	Date	Figure	Datum:	OSGB36	Projection:
	D	14/07/20	4.2			TM

Noise

Background

Pre-application advice for the proposed Development was requested from the Highland Council (THC) and a response provided in March 2019. The key aspects identified by THC Environmental Health relate to operational noise, cumulative noise, background noise measurements and construction noise and are discussed herein.

Consultant Experience and Expertise

The technical lead for noise will be Mark Jiggins, Hoare Lea. Mark's experience extends to many aspects of environmental noise spanning more than 20 years. Mark is an expert in the assessment of wind farm noise, having been involved since the earliest days of the industry and the UK's first commercial wind farms. Mark was a member of the Department of Trade and Industry Wind Turbine Noise Working Group which wrote the ETSU-R-97 guidance now used throughout the UK when assessing wind farm noise. Mark has developed advanced remote noise monitoring systems.

Baseline

An initial review of the baseline data surveyed for other windfarm schemes, and which are publicly available in the assessments for those schemes, suggests that existing baseline levels have been sufficiently defined for the purposes of an assessment of operational noise in accordance with ETSU-R-97 and best practice (see Table 1). Therefore, undertaking additional noise monitoring is not anticipated to be necessary, which in any case may have to be conducted with nearby adjacent operational wind turbines, and could therefore be contrary to best practice.

Potentially Significant Effects

During construction, noise could arise from both onsite activities, such as the construction of onsite access tracks, turbine foundations, the substation/control building etc., and from the movement of construction related traffic both onsite and travelling on public roads to and from the Site.

During operation, wind turbines have the potential to create noise effects through both aerodynamic noise and mechanical noise. Noise emitted from other operational elements of the development are likely to be negligible, and so the operational noise assessment will focus on the noise emitted from the proposed wind turbines.

Proposed Assessment Methodology and Approach

The noise impact assessment will assess the effects of construction (including traffic) of the proposed Development and operational noise of the wind turbines on nearby noise sensitive receptors (including cumulatively with nearby windfarms as necessary). The assessment will identify where significant effects may occur, what mitigation measures may be necessary, what residual effects there may be and what post commissioning monitoring would be undertaken.

The study area for the assessment will comprise the nearest noise sensitive receptors considered to be representative of residential dwellings in the immediate vicinity. These are dwellings that may experience noise effects from construction or operation of the proposed Development based on professional judgement and initial noise modelling. An initial review of those receptor locations nearby and that require to be assessed is shown below in Table 1 and on Figure 5.1. For each receptor, relevant information is discussed, which it is proposed to reference when assessing noise from the proposed Development. The initial review will be updated and list of receptor locations amended prior to the formal assessment being undertaken in order to ensure that the most accurate baseline environment is taken account of.

Table 1-List of receptor locations adjacent to the proposed Development which may require operational noise to be assessed. Included for each receptor is a discussion of sources of information on background noise levels and derived ETSU R 97 noise criteria

Receptor (Easting, Northing)	Assessment of the Proposed Development
Slickly (nearest location of three dwellings) (329472, 966952)	A baseline noise survey was undertaken at Slickly for the Lyth Windfarm ¹ at the dwelling Mooredge (329784, 966792). This baseline data will be used to represent those receptor locations at Slickly that are to the west of the road.
Slickly Croft (330192, 966236)	A baseline noise survey was undertaken at this location for the Slickly Windfarm ² . This baseline data will be used to represent this receptor consistent with the Slickly Windfarm assessment.
Syster (nearest of several dwellings) (327029, 969084) Lochend (nearest of several dwellings) (327495, 967732)	The noise assessment for the Lochend Windfarm ³ utilised baseline noise data from a noise survey undertaken for the Earl's Cairn Windfarm ⁴ at the location Syster (327029, 969084). This baseline data will be utilised for assessment of the Development at receptors at Syster and Lochend, consistent with the Lyth Windfarm assessment.
Ruthers of Howe (330212, 963012) Bramble Cottage (336028, 964989) Caith Cottage (336286, 965396)	Operational noise from the Development may be sufficiently below the ETSU-R-97 noise limits (at least 10 dB(A) below) that assessment would not be required. Should assessment be required, baseline data obtained at Slickly Croft (330192, 966236) for the Slickly Windfarm (see above) were used to represent these locations and would be utilised for assessment of the Development.
All other receptors near to the Development	Baseline noise surveys were undertaken for the Lyth Windfarm at Mooredge (329784, 966792), Greenfields (328640, 964307), Reaster Cottage (327032, 964392) and Moss-side House (325453, 966507). These baseline data were found to be reasonably consistent from location to location with regard to the relationship of background noise levels to wind speed (both day-time and night-time). It is proposed to use an average of these four baseline survey locations (separate for day-time and night-time periods), to represent all additional locations around the Development.

The assessment of construction noise effects will be undertaken in accordance with the guidance contained within BS 5228:2009+A1:2014: Code of Practice for Noise and Vibration Control on Construction and Open sites. Part 1: Noise (BS 5228-1). An assessment of potential impacts arising from any changes in traffic flows as a result of the proposed Development will also be undertaken as part of the construction noise assessment. Where necessary, appropriate levels of mitigation will be identified, in accordance with best practice, to ensure that noise levels are acceptable during the construction phase.

The assessment of operational noise effects will be undertaken using ETSU-R-97 'The Assessment of Rating of Noise from Wind Farms' (The Working Group on Noise from Wind Turbines, 1996). The report defines a procedure for assessing and rating windfarm noise.

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

Based on the approach set out in Table 1 above and the adopted quiet day and night-time wind varying background noise levels for each identified noise sensitive receptor, noise emission limits will be derived in accordance with the methodology set

1 Lyth Windfarm Environmental Statement, Chapter 10: Noise, Eurowind May 2013.
2 Slickly Windfarm Environmental Statement, Chapter 11: Noise, Statkraft, December 2019.
3 Lochend Windfarm Noise Impact Assessment, Chapter 5, Wind Harvest, July 2013.
4 The Highland Council application 12/00317/SCOP, Eurowind, January 2012.

out in ETSU-R-97. The significance of the predicted scheme noise emission levels will then be determined against these criteria when operating in combination with other wind energy schemes (operating, consented but not yet operational or proposed within the planning system). Consideration of cumulative operational noise effects will be completed in accordance with the IOA Good Practice Guidance (2013).

A representative wind turbine that meets the design requirements for the proposals will be nominated for the assessment of noise from the operational windfarm. A computer model will be constructed and used to predict noise levels resulting from the operation of the proposed Development, based on the methodology detailed in ISO 9613-2:1996, with the specific modelling procedure defined in the IOA Good Practice Guidance (2013).

Issues to be Scoped In or Out

Ground borne vibration resulting from the operation of wind turbines is imperceptible at typical receptor separation distances and is therefore proposed to be scoped out from the noise impact assessment.

Noise associated with the operation of the substation and routine maintenance visits and operational traffic is likely to be negligible, and therefore will be scoped out of the noise impact assessment.

Due to advances in turbine design, low frequency noise and vibration from turbines has been reduced. The Scottish Government references a report for the UK Government and concerning Low Frequency Noise that notes:

“...there is no evidence of health effects arising from infrasound or low frequency noise generated by wind turbines that were tested.”

Therefore, it is proposed that low frequency noise is scoped out from the impact assessment.

Consultees

The consultees below will be approached for information to inform the EIA. These consultees may also be contacted by the Scottish Government regarding the scope of the EIA:

- The Highland Council, Environmental Health

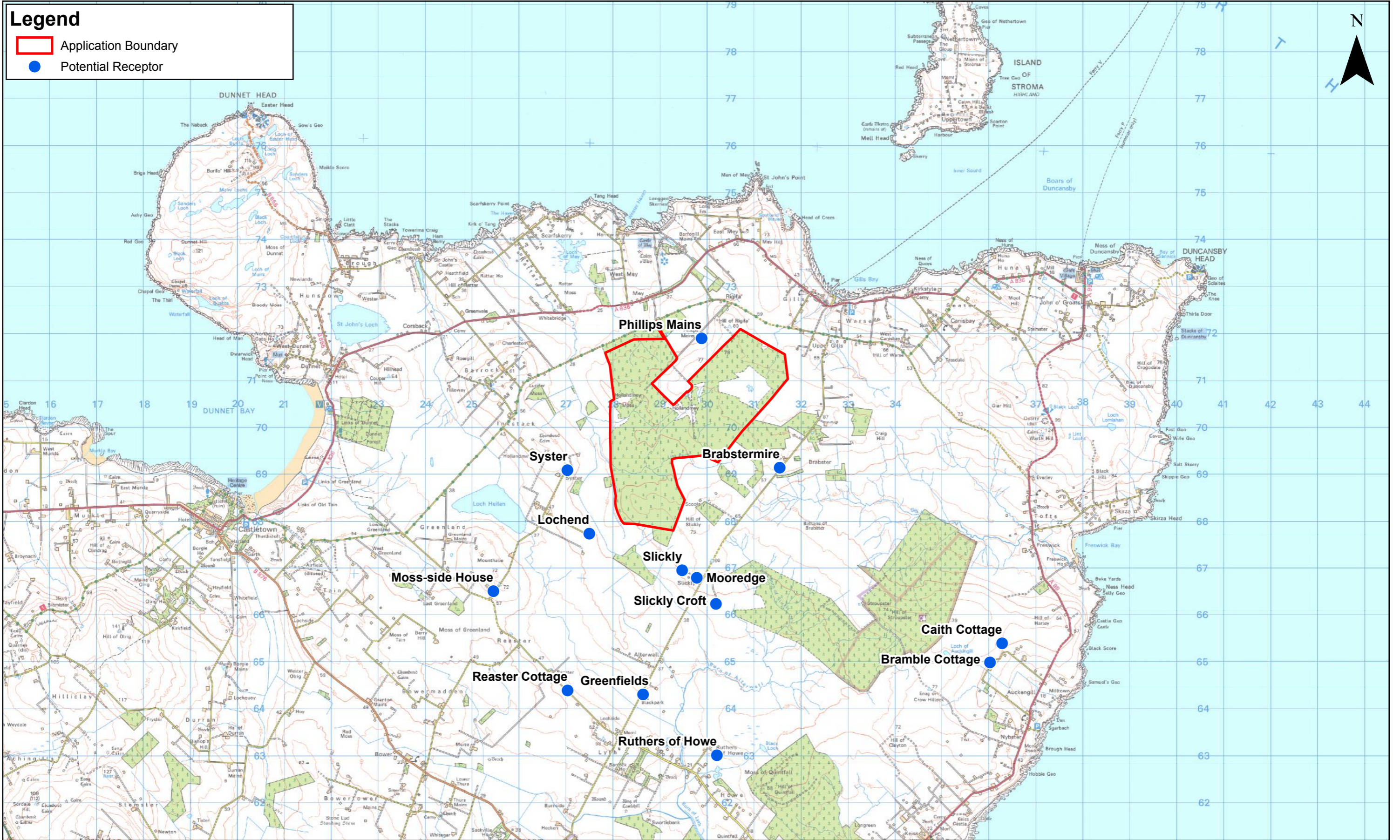
Consultee Questions

- Do consultees agree with the proposed approach to the noise and vibration assessment as set out above?

Relevant Policy and Guidance

The noise assessment will be undertaken with reference to the following documents:

- The Working Group on Noise from Wind Turbines, (1996). ETSU-R-97 The Assessment and Rating of Noise from Wind Farms.
 - Scottish Government, (2011). PAN 01/2011 Planning and Noise and associated Technical Advice Note.
 - Scottish Government, (2014). Onshore Wind Turbines: Planning Advice. Online planning advice.
 - (Institute of Acoustics (IoA), (2013). A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise
 - British Standards Institution, (2014). BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise
 - HMSO Department of Transport (1988). Calculation of Road Traffic Noise
 - The Highways Agency, Transport Scotland, Transport Wales, the Department for Regional Development (Northern Ireland), (2011). Design Manual for Roads and Bridges (DMRB), Volume 11, section 3, Part 7, Traffic Noise and Vibration.
 - The Highland Council, (2018). Caithness and Sutherland Local Development Plan (CaSPlan).
 - The Highland Council, (2012). Highland-wide Local Development Plan (HwLDP).
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C	14/07/2020	AJ	RLB updated.
B	01/07/2020	AJ	Application boundary updated.
A	20/05/2020	AJ	First Issue.
Rev	Date	By	Comment

1:75,000
Scale @ A3

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Hollandmey Renewable Energy Development Potential Receptors

Drg No	HMY_C_026	
Rev	C	Datum: OSGB36
Date	14/07/2020	Projection: TM
Figure	5.1	

Ecology

Background

Pre-application advice for the proposed Development was requested from the Highland Council (THC) and a response provided in March 2019. Key issues relating to impacts on the ecology, as provided by Scottish Natural Heritage (SNH) and additional relevant advisory bodies are summarised here.

THC response identifies that the Site is located to the west of the Caithness and Sutherland Peatlands Special Area of Conservation (SAC), designated for its internationally important peatland, habitats, rare plant species and otter *Lutra lutra* interests. As such, the proposal should look to include appropriate mitigation measures to ensure that no direct or indirect impacts upon the SAC will occur and that the integrity of the designation will be maintained. A survey for otter, which are a qualifying feature of the SAC, should also be undertaken to inform the EIA and if otters are present an otter protection plan should be produced.

The Site is noted to contain areas of blanket bog, including that located within the Phillips Main Mire Site of Special Scientific Interest (SSSI). The response acknowledges and advises that while no development infrastructure is proposed to be located within the designation boundary, appropriate mitigation measures should be included to demonstrate that the proposal would not either directly or indirectly impact on the SSSI. It is advised that a National Vegetation Classification (NVC) survey is to be undertaken to inform turbine siting and an assessment upon Ground Water Dependent Terrestrial Ecosystems (GWDTEs). If any proposed turbine locations and access tracks are located on blanket bog then further NVC survey at these locations, and within the micro-siting buffer to determine the condition of habitats.

It is advised that the Site may support a range of European and nationally protected species including; otter, bats, freshwater pearl mussel *Margaritifera margaritifera*, wildcat *Felis silvestris*, badger *Meles meles*, pine marten *Martes martes* and water vole *Arvicola amphibius*. Any planning application should therefore be informed by surveys of the presence of these species on the Site together with an assessment of likely impacts and proposed mitigation, with reference to current guidance.

A HMP should be produced in draft to detail measures necessary to restore habitats subject to disturbance caused by the proposed Development, together with opportunities to enhance habitats as a result of historic impact such as through the re-use of any timber felling and through appropriate deer management.

Consultant Experience and Expertise

The technical lead for Ecology will be Nicole Robinson from Avian Ecology Ltd. Nicole is an Associate Member of the Chartered Institute for Ecology and Environmental Management (CIEEM) and holds a BSc in Ecological Sciences from the University of Edinburgh (2009) and an MSc in Ecological Management and Conservation Biology from Queens University Belfast (2010). She has over 10 years' experience in the EIA of renewable energy developments in Scotland and throughout the UK, in relation to ecological and ornithological interests and designated sites for nature conservation.

Nicole is supported by Howard Fearn (Director) of Avian Ecology Ltd. a Full Member of CIEEM, with an MSc in Ecology and Environmental Management (2007) and over 12 years' experience in the EIA of onshore renewable energy developments, in relation to ecological and ornithological interests.

She is also supported by a team of highly skilled ecological field surveyors, with considerable experience in undertaking baseline ecological field surveys for onshore renewable energy developments including habitat and species specialists familiar with working on sites of an upland and remote nature.

Baseline

Designated Sites

Statutory designated sites for nature conservation with ecological features of interests located within 10 km of the Site are summarised in Table 6.1 and shown on Figure 6.1.

Those sites with geological and ornithological features of interest are considered under 'Hydrology, Hydrogeology, Geology & Soils' and 'Ornithology'.

The Phillips Mains Mire SSSI is located in its entirety within the north eastern extent of the Site and is designated by virtue of its nationally important blanket bog habitat interests, with an extensive system of dubh lochans. The latest assessed condition of the Site is Favourable Maintained.

The Site does not form part of any non-statutory designated site for nature conservation.

Table 6.1: Statutory designated sites for nature conservation.

Site Name	Designation	Distance and Direction	Ecological Designated Features
Phillips Mains Mire	SSSI	Onsite	Blanket bog
Stroupster Peatlands	SSSI	1.1 km East	Blanket bog Oligotrophic loch
Caithness and Sutherland Peatlands	SAC	1.14 km East	Acid peat-stained lakes and ponds Blanket bog Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels Depressions on peat substrates Very wet mires often identified by an unstable 'quaking' surface Wet heathland with cross-leaved heath Marsh saxifrage (<i>Saxifraga hirculus</i>) Otter (<i>Lutra lutra</i>)
Caithness and Sutherland Peatlands	Ramsar	1.14 km East	Blanket bog
Loch of Mey	SSSI	1.7 km North West	Transition grassland
Loch Heilen	SSSI	1.9 km West	Mesotrophic loch
Dunnet Links	SSSI	3 km West	Sand dunes
Duncansby Head	SSSI	3 km East	Maritime cliff
Stroma	SSSI	5.7 km North East	Maritime cliff
Dunnet Head	SSSI	7.1 km North West	Maritime cliff
Loch of Durran	SSSI	7.7 km South West	Transition grasslands Vascular plant assemblage

Site Name	Designation	Distance and Direction	and Ecological Designated Features
Loch of Wester	SAC	8.5 km South	Naturally nutrient-rich lakes or lochs which are often dominated by pondweed
Loch of Wester	SSSI	8.5 km South	Mesotrophic Loch

Habitats and Vegetation

The habitats within the Site are comprised largely of commercial coniferous plantation woodland, the majority of which are mid-rotation but are likely to be of varying heights and maturity, with some areas of felling and restock, open moorland and grassland habitats.

A small number of watercourses intersect the Site, including the Link Burn, Burn of Horsegrow, the Burn of Ormigill, Burn of Hollandmey. A small number of waterbodies are also present within the Site, including the dubh lochans of the Phillips Mains Mire SSSI.

Proposed Baseline Survey Methodologies

The following baseline ecological field surveys and desk studies will be undertaken to inform the design and assessment of the proposed Development.

Desk Study

A desk study will be undertaken to identify and review existing ecological information pertaining to the Site and surrounding area. The following key sources will be consulted to obtain existing information for non-statutory designated sites and protected and notable species out to 2 km of the Site (extended to 10 km for information relating to bat species):

- SNH Sitelink;
- SNH;
- Scotland's Environment Map (<https://map.environment.gov.scot/sewebmap/>);
- Highland Biological Recording Group;
- Flow Country Rivers Trust;
- Scottish Wildcat Action; and,
- Saving Scotland's Red Squirrels (Scottish Squirrels).

Publicly available EIA documentation for the following adjacent windfarms will also be reviewed, together with additional peer reviewed literature and publicly available resources where relevant:

- Lochend (Operational) 3/02682/FUL;
- Stroupster (Operational) 05/00273/FULCA;
- Slickly (Application) 19/05624/FUL; and,
- Lyth (Refused) 3/01832/FUL.

Field Surveys

Ecological field surveys proposed for completion in 2020 to inform the design and assessment of the Proposed Development are detailed in Table 6.2.

The commencement of ecological field surveys in April 2020, was compromised as a result of the Covid-19 virus outbreak. Surveys were however, commenced in late-May 2020 where they could be done safely, in accordance with current Scottish Government advice and with social distancing measures in place.

The completion of ecological field surveys through the spring, summer and autumn of 2020, will continue to be undertaken in accordance with current good practice survey guidance in so far as is possible and no essential gaps in surveys are currently anticipated. Should significant limitations to the undertaking of proposed baseline ecological field surveys detailed in Table 6.2 be experienced due to evolving Covid-19 restrictions, the degree to which a precautionary approach can be adopted will be discussed with SNH at the earliest opportunity prior to assessment.

Table 6.2: Proposed ecological field surveys.

Ecological Feature	Overview of Proposed Survey Methodology
Habitats and Vegetation	<p>A Phase 1 habitat survey for all terrestrial habitats likely to be affected by the Proposed Development, will be undertaken following industry standard survey guidance (JNCC, 2010).</p> <p>A NVC survey of potential habitats listed on Annex 1 of the EC Habitats Directive and UKBAP Priority Habitats will also be undertaken following industry standard survey guidance (Rodwell, 2006), complemented by Common Standards Monitoring where required to assess the condition of sensitive upland habitat features (JNCC, 2009).</p> <p>The survey area will comprise habitats within the Site, and accessible areas out to 300 m (maximum ecology survey area as shown on Figure 6.2), to allow for the identification of potential GWDTEs and subsequent hydrological assessment in accordance with Scottish Environmental Protection Agency (SEPA) guidance (SEPA, 2014).</p>
Bats	<p>Bat activity surveys will follow current SNH guidelines 'Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation' (SNH, 2019b), in so far as is possible, and in view of the limitations posed by the locality of the Site with regards appropriate weather conditions for bat activity. Surveys will therefore seek to capture a longer period of monitoring during the spring¹, summer and autumn 2019 activity period (up to 30 nights), to sample a representative range of weather conditions applicable for the Site.</p> <p>Survey effort will be focused in those parts of the Site where turbines are most likely to be located, including at proposed turbine locations where these are confirmed at the time of survey and to ensure a representative sample of baseline bat activity is captured on the basis of habitat types and features. Surveys will employ the use of ground-level static monitoring stations and weather stations, with the number of monitoring stations deployed calculated on the number of proposed turbines in accordance with SNH guidance (2019b). Adopting a precautionary approach, a total of 12 monitoring stations are proposed.</p> <p>Supplementary survey methods including walked transects, vantage point surveys and monitoring at height are not proposed.</p>

¹ The commencement of bat activity surveys was compromised by the outbreak of the Covid-19 virus, with sampling of spring bat activity in 2020 commenced in the late May. The spring survey period defined in current SNH guidance (2019) is April to May and as such partial survey coverage has been completed and is not considered to represent a significant limitation to the baseline data set for the purposes of assessment.

Ecological Feature	Overview of Proposed Survey Methodology
	<p>A ground-level survey for features that could support bat roosts within 200 m, plus rotor radius, of the Site will be undertaken to inform the requirement for further surveys (i.e. presence/absence surveys) in consultation with SNH.</p>
Pine marten	<p>Woodland habitats within the Site may provide suitable opportunities for pine marten, with some use of open moorland habitats also possible.</p> <p>A survey for pine marten will therefore be undertaken in accordance SNH guidance (2019a), with reference to good practice survey methodologies (e.g. Cresswell et al., 2012). The survey will comprise a walkover search for signs of pine marten presence and potential den sites within and out to 250 m of the Site as access allows.</p>
Badger	<p>Badgers are generally considered to be absent or scarce within this locality of Caithness however, opportunities for sett creation may be present, notably within woodland habitats of the Site.</p> <p>A survey for badger will therefore be undertaken in accordance with SNH guidance (SNH, 2019a) with reference to good practice survey methodologies (e.g. Harris et al., 1989; SNH, 2018b). The survey will comprise a walkover search for signs of badger presence and set locations within 100 m of the Site, as access allows.</p>
Otter	<p>The woodland and watercourses of the Site may provide suitable foraging, commuting and holt opportunities for otter.</p> <p>A survey for otter will be undertaken in accordance with SNH guidance (2019a), with reference to good practice survey methodologies (e.g. Channin, 2003). The survey will comprise a walkover search along watercourse sections within 200 m of the proposed Development for signs of otter presence and potential holt locations, as access allows.</p> <p>Observations of possible holt locations made during badger surveys will also be recorded, with further targeted surveys of terrestrial habitats within the Site which may support inland holt locations, undertaken where identified.</p>
Water vole	<p>The watercourses within the Site may provide suitable habitat for water vole. A survey for water voles will therefore be undertaken in accordance with SNH guidance (SNH, 2019a) with reference to good practice survey methodologies (e.g. Dean et al., 2016). The survey will comprise a walkover search of suitable watercourse sections within 50 m of the proposed Development, for signs of water vole presence.</p>
Red squirrel	<p>Red squirrels are considered to remain scarce in this locality of Caithness however, habitats within the Site may provide suitable drey creation and foraging opportunities.</p> <p>A survey for red squirrels, including a search for feeding signs and presence of dreys within suitable habitats of the Site will be undertaken to confirm presence, or likely absence in accordance with SNH guidance (SNH, 2019a).</p>
Fish	<p>A fish habitat assessment will be undertaken of all watercourses intersecting the Site following industry standard guidance (SFCC, 2007) extended to include the suitability of habitats for freshwater pearl mussel in accordance with SNH guidance (SNH, 2019a).</p>

Potentially Significant Effects

The EIA will consider the following main impacts on ecological features and from which potentially significant effects may occur as a result of the construction, operation and decommissioning of the proposed Development:

- designated sites: including direct and indirect impacts to qualifying habitat features;
- terrestrial habitats and vegetation: effects include direct (i.e. derived from land-take from all infrastructure) and indirect (i.e. changes caused by effects to supporting systems such as groundwater or overland flow);
- aquatic habitats: including ecological effects of changes in water conditions through potential pollution effects. Hydrological effects will be considered in the appropriate EIA Report Chapter; and
- protected species, bats and fish: effects considered will include direct (i.e. loss of life as a result of the proposed Development; loss of key habitat; barrier effects preventing movement to/from key habitats; and general disturbance) and indirect (i.e. loss/changes of/to food resources; population fragmentation; degradation of key habitat, e.g. as a result of pollution).

The EIA Report will provide sufficient information to inform a Habitats Regulations Appraisal (HRA) of the proposed Development upon Natura sites, where the potential for likely significant effects upon the qualifying ecological features of such sites is considered.

Proposed Assessment Methodology and Approach

Impact assessment presented within the EIA report for ecological features will be based on current CIEEM guidance (2019).

The assessment of potential effects of bats as a result of the proposed Development will be undertaken in accordance with SNH (2019b) guidelines and include measures of relative bat activity using Ecobat.

The assessment process will include the following stages:

- determination and evaluation of important ecological features;
- identification and characterisation of impacts;
- outline of mitigating measures to avoid and reduce significant impacts;
- assessment of the significance of any residual effects after such measures;
- identification of appropriate compensation measures to offset significant residual effects; and
- identification of opportunities for ecological enhancement.

The assessment within the EIA Report will only assess in detail impacts upon important ecological features i.e. those that are considered important and potentially significantly affected by the proposed Development. A detailed assessment of features that are sufficiently widespread, unthreatened and resilient to project impacts will not be undertaken and justification for 'scoping out' provided.

Relevant European, national and local legislation, policy and guidance will be referred to in order to determine the importance (or 'sensitivity') of ecological features. In addition, importance will also be determined using professional judgement, specialist consultation advice and the results of baseline surveys and the importance of features within the context of the geographical area.

Importance will not necessarily relate solely to the level of legal protection that a feature receives and ecological features may be important for a variety of reasons, such as their connectivity to a designated site and the rarity of species or the geographical location of species relative to their known range.

The importance of an ecological feature will be defined in a geographical context from 'Local' to 'International'.

Impacts will be considered for the construction and operational phases of the proposed Development and will be assessed on the basis that a clearly defined range of avoidance and standard good practice measures are implemented.

Potentially significant effects upon important ecological features identified will be expressed with reference to an appropriate geographic scale. For example, a significant effect on a nationally designated site is likely to be of national significance.

In cases of reasonable doubt, where it is not possible to robustly justify a conclusion of no significant effect, a significant effect will be assumed as a precautionary approach. Where uncertainty exists, this will be acknowledged.

The potential for cumulative impacts with other renewable energy developments proposals will be assessed in accordance with SNH guidance (2012) and include consideration of those such developments located within the same hydrological catchment(s) or within the regular range of mobile species out to a maximum of 10 km from the application boundary for bats, in accordance with current SNH guidance (2019).

The assessment will encompass the effects of the proposal in-combination with existing developments, either built or under construction; approved developments, awaiting implementation; and, proposals awaiting determination within the planning process with design information in the public domain.

Approach to Mitigation

The adoption of embedded mitigation measures to avoid or minimise adverse impacts upon ecological features will be part of the iterative design process for the Proposed Development.

Measures to avoid or otherwise and minimise potentially adverse impacts upon ecological features during scheme design will include:

- Land-take

Development infrastructure will be designed to minimise the requirement for land-take and the number of watercourse crossings;

The scheme design will also seek to minimise the requirements for tree felling, in so far as is possible having regard to other ecological and non-ecological constraints;

- Watercourse crossings

New watercourse crossings required would be designed in accordance with best practice and enable the free passage of fish and other wildlife;

- Watercourse Buffers

A minimum 50 m buffer between scheme infrastructure will be applied around all watercourses in so far as possible having regard to other ecological and non-ecological constraints;

- Construction Environmental Management Plan (CEMP)

A CEMP (or similar) would be in place during the construction, operational and decommissioning phases of the development. The CEMP will include all good practice construction measures, pollution prevention controls and monitoring to be implemented over the course of the development in line with good practice guidance; and

- Bat Habitat Features

A minimum 50 m buffer (from blade tip) will be applied to watercourses and woodland edges in so far as possible having regard to other ecological and non-ecological constraints.

Where the EIA Report proposes additional measures to mitigate potentially significant adverse effects on ecological features, a further assessment of residual ecological effects, taking into account any ecological mitigation recommended, will be undertaken.

Where baseline ecological surveys confirm the presence of protected species within the Site and which may be impacted by the Proposed Development, additional measures shall include those to ensure legislative compliance in the form of species protection plans. Where required draft protection plans will be provided as part of the EIA Report, and will be finalised in consultation with SNH and other relevant consultees.

Approach to Enhancement

Suitable principles for biodiversity enhancement to be delivered as part of the proposed Development will be outlined within the EIA report. The appropriateness and feasibility of principles will be confirmed with SNH and relevant consultees as necessary over the course of the EIA, with a view to prescriptive enhancement measures being detailed post-consent within a HMP or similar.

Opportunities for compensatory woodland planting and/or woodland habitat improvement will be outlined in conjunction with the Forestry section of the EIA report.

Issues to be Scoped in or Out

Within the EIA, impacts will be considered during the construction and operational phases of the proposed Development.

The adoption of embedded measures to avoid or minimise adverse impacts upon ecological features, at each phase, will be part of the iterative design process for the proposed Development.

Designated sites

No infrastructure would be located within the Phillips Mains Mire SSSI and there would be no direct impact upon the ecological qualifying interests of any statutory designated site for nature conservation.

The EIA will consider the potential for significant indirect effects upon the Phillips Mains Mire SSSIs qualifying blanket bog interests and implications for its currently 'Favourable Maintained' conservation status.

The potential for indirect impacts upon the ecological qualifying interests of any such site listed in Table 1, located greater than 5 km from the application boundary is considered highly unlikely; by virtue of the static nature of the qualifying habitats interests, spatial separation and/or absence of clear hydrological pathways of connectivity. The potential for impacts upon the following statutory designated sites are therefore scoped out for detailed assessment within the EIA: Stroma SSSI, Dunnet Heath SSSI, Loch of Durran SSSI, Loch of Wester SAC/SSSI.

Similarly the potential for indirect impacts upon the 'Maritime cliff' qualifying interests of the Duncansby Head SSSI and the 'Sand dunes' qualifying interests of the Dunnet Links SSSI are reasonably precluded on the basis of the nature of development, spatial separation and existing barriers for potential effects including roadways.

The Loch Heilen SSSI, Caithness and Sutherland Peatlands SAC/Ramsar and Stroupster Peatlands SSSI are located within a different hydrological catchment to that occupied by the proposed Development with no obvious pathways for hydrological connectivity however, by virtue of spatial proximity the potential for indirect impacts upon the designations ecological habitat interests will be considered further within the EIA.

In the event otter are recorded within the Site, the potential for likely significant effects upon the Caithness and Sutherland Peatlands SAC will also be considered within the EIA to inform a HRA, if required.

The Site has direct hydrological connectivity with the Loch of Mey SSSI and as such the potential for significant impacts upon the designations transition grassland habitats will be considered within the EIA.

The potential for direct and indirect impacts upon ornithological and geological qualifying interests of designated sites is considered separately under 'Ornithology' and 'Hydrology, Hydrogeology, Geology & Soils'.

Protected species

The use of additional survey techniques (e.g. camera trapping) to further establish the presence of protected species (e.g. occupancy of den sites) and inform mitigation requirements are not currently proposed, but would be discussed with SNH and relevant primary interest groups, should the requirement for such be identified.

It is considered that the requirement for further detailed fish surveys to inform an assessment of effects upon fish need not be required providing the implementation of good practice scheme design and mitigation measures. Mitigation measures would be developed in consultation with SNH and other primary interest groups, to avoid and/or minimise the potential for pollutant impacts upon aquatic habitats and ensure the free passage of fish within the Site is maintained.

In accordance with SNH guidance (2018a) there are some species groups which, providing the implementation of suitable mitigation measures, are unlikely to be subject to significant effects as a result of windfarm developments. As such, they do not require surveys to inform an EIA. This includes invertebrates, reptiles and amphibians but excludes additional European Protected Species (EPS).

The only additional EPS with some potential to be present within the Site is great-crested newt *Triturus cristatus* and wildcat.

Great crested newt is known to be present, but localised in Caithness (McInerny & Minting, 2016). Formal survey is not currently proposed however, in the event suitable breeding water bodies are identified and may be impacted by the proposed Development, the requirement for survey to establish species presence and consideration within the EIA will be discussed in consultation with SNH.

The Site is not located in proximity to any Wildcat Priority Area. The presence of wildcat and potential for impacts is considered unlikely however, consultation will be undertaken with Scottish Wildcat Action to identify any existing species records within proximity to the Site and the requirement for any formal survey and assessment.

Consultees

The consultees below will be approached for information to inform the EIA. These consultees may also be contacted by the Scottish Government regarding the scope of the EIA:

- Scottish Natural Heritage
- Highland Biological Recording Group (HBRG);
- Scottish Wildcat Action;
- Flow Country Rivers Trust; and,
- Scottish Squirrels.

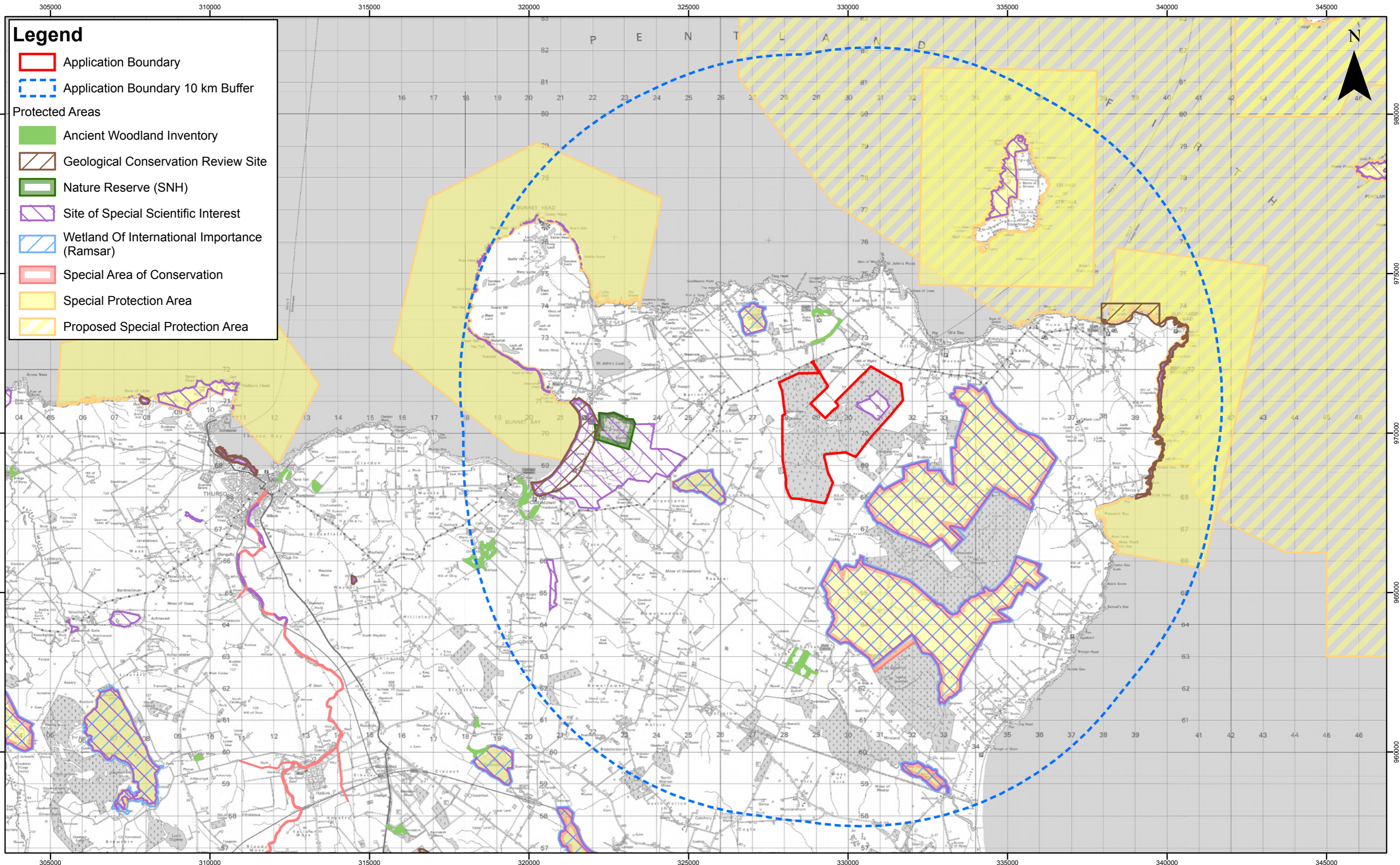
Consultee Questions

- Do consultees agree that the range of surveys proposed is sufficient and appropriate?
 - Do consultees agree with the approach to the proposed surveys to be undertaken?
 - Do consultees agree with those surveys which have been scoped out i.e. in relation to protected species?
 - Are there any other relevant consultees/key sources who should be contacted with respect to baseline ecological information gathering and assessment?
 - Do consultees agree with the proposed assessment of the potential effects as a result of the proposed Development, including the approach to cumulative assessment?
 - Are there any specific non-wind energy developments that consultees believe should be considered for inclusion within the cumulative impact assessment?
 - Do consultees agree that a detailed assessment of impacts upon the ecological qualifying interests of the Stroma SSSI, Dunnet Heath SSSI, Loch of Durran SSSI, Loch of Wester SAC/SSSI is not required?
-

Relevant Policy and Guidance

The following key pieces best practice guidance will be used to inform the scope and approach to baseline ecological information gathering, interpretation and assessment:


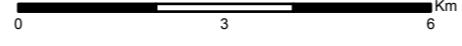
- The Highland Council (2016) Onshore Wind Energy Supplementary Guidance. The Highland Council.
 - Chanin P (2003) Monitoring the Otter *Lutra lutra*. Conserving Natura 2000 Rivers Monitoring Series No 10. English Nature, Peterborough;
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Legend

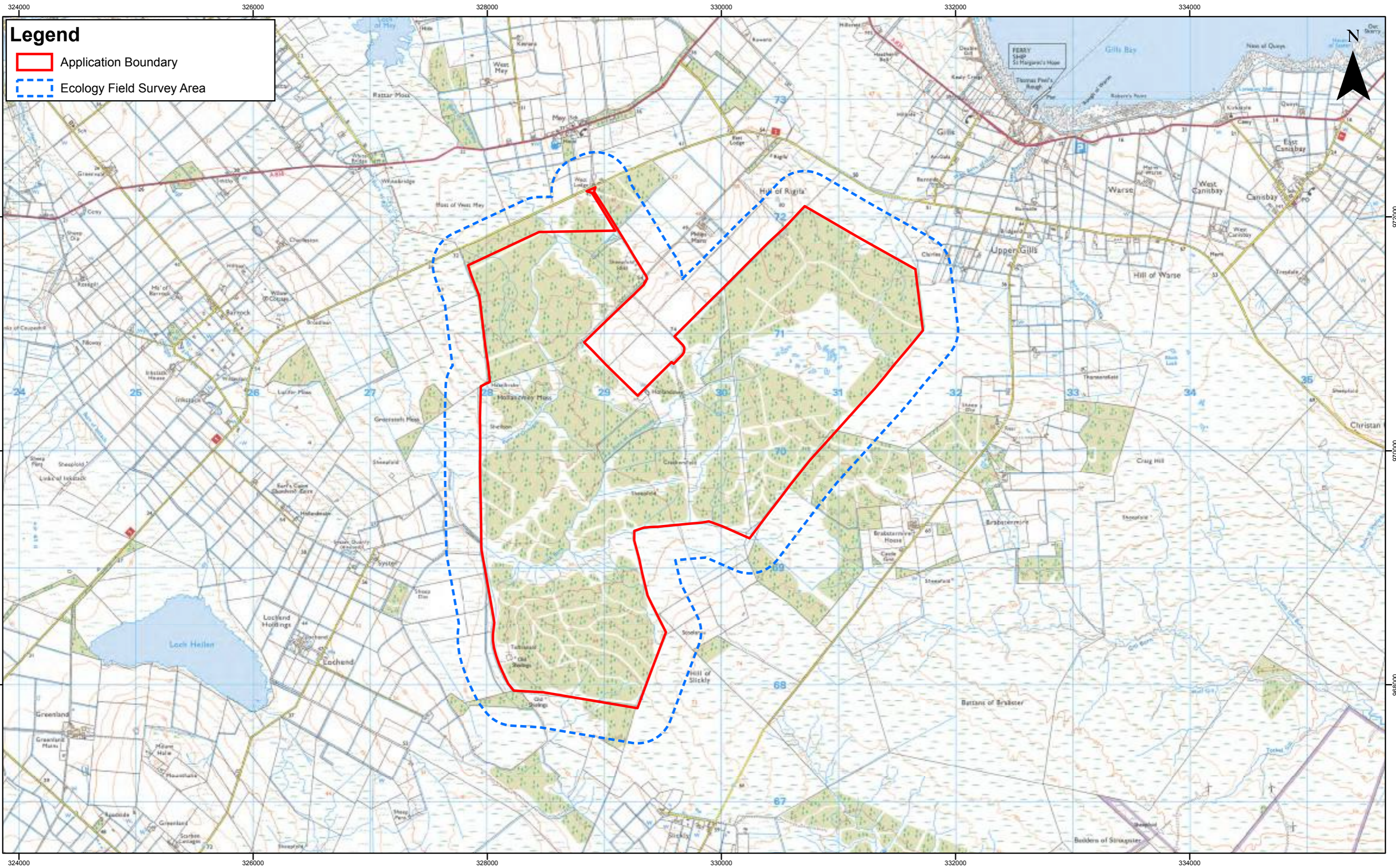
- Application Boundary
- Application Boundary 10 km Buffer
- Ancient Woodland Inventory
- Geological Conservation Review Site
- Nature Reserve (SNH)
- Site of Special Scientific Interest
- Wetland Of International Importance (Ramsar)
- Special Area of Conservation
- Special Protection Area
- Proposed Special Protection Area



	C	14/07/2020	AJ	RLB updated.	1:110,000 Scale @ A3 	Hollandmey Renewable Energy Development Ecological Designated Sites	Drg No	HMY_C_027		
	B	01/07/2020	AJ	Application boundary updated.			Rev	C	Datum:	OSGB36
	A	29/05/2020	DL	First Issue.			Date	14/07/2020	Projection:	TM
	Rev	Date	By	Comment			Figure	6.1		

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Legend

- Application Boundary
- Ecology Field Survey Area



Rev	Date	By	Comment
C	14/07/2020	AJ	RLB updated.
B	01/07/2020	AJ	Application boundary updated.
A	29/05/2020	DL	First Issue.

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Scale @ A3

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Hollandmey Renewable Energy Development Ecology Field Survey Area Plan

Drg No	HMY_C_028	
Rev	C	Datum: OSGB36
Date	14/07/2020	Projection: TM
Figure	6.2	

Landscape and Visual

Background

Pre-application advice for the proposed Development was requested from the Highland Council (THC) and a response provided in March 2019. Key aspects relating to landscape and visual are summarised here.

THC indicated that development proposals at the Site will need to overcome the issues that upheld the refusal of the planning application for Lyth Wind Farm (planning ref: 13/01832/FUL) and will need to demonstrate compliance with THC's Onshore Wind Energy Supplementary Guidance (OWESG).

THC indicate that the Site lies in a Group 2 Area of Significant Protection as set out in the OWESG. They advise this is mainly due to the Site being located in an area of carbon rich soils.

THC advise that the Site is in a landscape character area referenced as CT3 in the landscape sensitivity study that is part of the adopted suite of Supplementary Guidance on wind energy development. The assessment of effects of development at the Site should consider the findings of the sensitivity study in relation to CT3 and the guidance therein. THC advise that the sensitivity study indicates there is 'limited scope' for large scale development that should follow guidance set out in the study. In particular THC point to the need for the development to ensure a "proportional relationship between development scale and landscape character and setting is maintained, and avoid significant effects on the adjacent small scale narrow seaboard landscape." Figure 7.1 of this Information Sheet shows SNH Landscape Character Types and Figure 7.2 shows Landscape Designations and Wild Land Areas." Figure 7.1 of this Information Sheet shows SNH Landscape Character Types and Figure 7.2 shows Landscape Designations and Wild Land Areas.

THC advise that the assessment of sensitive receptors will need to include those who reside in the area and those who visit it including settlements, transport routes and visitor and recreational facilities. The assessment will need to demonstrate how any potential impacts on amenity have been mitigated for residential properties within 2 km of the proposed Development. The proposed Development must have regard to the citations of relevant Special Landscape Areas (SLA) as the impacts of the development will be assessed against the description in the citation of SLA that may potentially be affected.

THC indicate that the Flow Country is on the tentative list for World Heritage Status and progress of that work should be followed.

THC provide an appraisal of potential development at the Site against relevant criteria relating to landscape and visual aspects that the Council will use as a framework for assessing development proposals as set out in the OWESG.

A list of suggested viewpoints is provided by SNH and these have been considered in the selection of proposed viewpoint locations shown on Figure 7.3 of this Information Sheet. SNH advise that the applicant should check with the THC for an up-to-date list of cumulative developments to include in the cumulative LVIA. The latest published list has informed the selection of cumulative development shown on Figure 7.4.

Consultant Experience and Expertise

The technical lead for Landscape & Visual will be Ross Allan from RSK. Ross is a Chartered Landscape Architect with a Postgraduate Diploma in Landscape Management from the University of Sheffield, an MSc in Rural and Regional Resources Planning from the University of Aberdeen and a BSc (Hons) in Geography from the University of Aberdeen. He has over 18 years' experience in environmental impact assessment, specialising in landscape and visual impact assessments (LVIA) and associated technical assessments such as residential visual amenity, seascape and townscape in addition to specifying windfarm photography and visualisations and other supporting documents. During his career Ross has worked for Scottish Natural Heritage (SNH) as a Landscape and Planning Adviser covering the north west Highlands and Western Isles. He has worked on over 20 windfarm projects in the UK.

Ross will be supported by a team of landscape architects and visualisations specialists with experience in environmental impact assessment in Scotland and the wider UK.

Baseline

The proposed Development consists of a renewable energy development with wind turbines of 150 m in height to blade tip. The potential for solar panels and energy storage is also being considered. Current guidance recommends a study area of 45 km radius from the outermost wind turbines of the proposed Development where wind turbines are greater than 150 m in height. Given the relatively low-lying topography and pattern of visibility indicated by the Zone of Theoretical Visibility (ZTV) map shown on Figure 7.3 it is proposed that the study area for the LVIA will be a 40 km radius in all directions from the outermost wind turbines of the proposed development.

The Site is moorland with forest plantation and open ground between forested areas. The landform is gently undulating sloping from an altitude of approximately 79 m Above Ordnance Datum (AOD) in the north east of the Site to 36 m AOD in the north west. Several minor watercourses drain the Site including Burn of Ormigill, Burn of Hollandmey and Link Burn in addition to extensive drainage ditches that connect to these watercourses. There are small lochans in the northern part of the Site including a group of lochans in the north east in Phillips Mains Mire Site of Special Scientific Interest.

There are agricultural buildings in the north of the Site and tracks within and on the edges of the Site. There are sheepfolds in the north and south of the Site and a shielding in the south. Lochend Wind Farm comprising of four wind turbines each 99.5 m in height to blade tip is immediately to the west of the Site.

Landscape Character

In 2019 SNH updated its National Landscape Character Assessment¹ and published maps and descriptions of Landscape Character Types (LCT) on its web pages.

The majority of the Site is in LCT 134 Sweeping Moorland and Flows with a small proportion in the north in LCT 143 Farmed Lowland Plain as shown on Figure 7.1. Key Characteristics of LCT 134 Sweeping Moorland and Flows include:

- *“Gently sloping or undulating landform which lies generally below 350 metres.*
- *Pockets of improved grazing, mainly within the outer fringes of sweeping moorland.*
- *Coniferous forest forming a dominant characteristic within some parts of this landscape character type.*
- *Very sparsely settled with dispersed crofts, farms and estate buildings largely found on the outer edges of this landscape or near a strath.*
- *Vehicular tracks within parts of the landscape.*
- *Wind farms, transmission lines, the A9 and a network of minor roads are key features within the more modified outer fringes within Caithness.*
- *Long, low and largely uninterrupted skylines offering extensive views across this landscape and result in a feeling of huge space.*
- *Consistent views to the distant Lone Mountains and Rugged Mountain Massif – Caithness & Sutherland.*
- *Great sense of exposure on areas of flat peatland on upland plateau.*
- *A strong sense of remoteness is associated within the largely uninhabited, inaccessible core flows and moorlands of this landscape.”*

Key Characteristics of LCT 143 Farmed Lowland Plain include:

- *“A generally open, low-lying plain, gently undulating to form shallow broad valleys, which are often filled with lochs and mosses, and subtle low ridges.*
- *Agriculture the predominant land cover.*

¹ Scottish Natural Heritage (SNH) (2019) Scottish Landscape Character Types Map and Descriptions.

- *Larger conifer woodlands located at the transition with the Sweeping Moorland and Flows standing out where they are planted on poorer wetter ground on low ridges.*
- *Farm buildings and houses forming focal points within the landscape.*
- *Occasional loose clusters of croft houses located on more marginal upper slopes and near the coast.*
- *A number of historic environment features, including conspicuous castles, Baronial mansions and tall 'Lairds' houses, usually with broadleaf shelter woods planted around them.*
- *A number of large settlements, including the towns of Thurso and Wick, situated on the coast, as well as several smaller settlements.*
- *Many historic features, including brochs and cairns, dotted across farmland and situated on hills within, or adjacent to, this area.*
- *Small groups of large wind turbines sited on some of the low ridges and hills and prominent visibility of larger wind farms in adjacent Landscape Character Types.*
- *Extensive views due to the openness of the landscape, and the clarity of northern air and light.*
- *Dramatic views from the northern part of this landscape to Dunnet Head and the distant Orkney islands, and views from the A9 on the western edge of this landscape of the Lone Mountains of Movern and Scaraben seen across the low-lying Sweeping Moorland and Flows."*

Designated Landscapes and Wild Land Areas

The Site is not in a designated landscape or Wild Land Area (WLA). Designated landscapes and WLA in the proposed study area are shown on Figure 7.2.

The nearest designated landscape of national importance is Hoy and West Mainland National Scenic Area (NSA) approximately 25 km to the north of the Site in Orkney Islands Council administrative area. There are four locally designated SLAs in the proposed 40 km study area:

- Dunnet Head SLA: 5.3 km to the west;
- Duncansby Head SLA: 7.4 km to the east;
- the Flow Country and Berriedale Coast SLA: 25 km to the south west; and
- Farr Bay, Strathy and Portskerra SLA: 40 km to the west.

There are two Garden and Designed Landscapes (GDL) in the proposed study area, Castle of Mey (Barrogill Castle), which is 1.8 km to the north of the Site; and Melsetter House on the island of Hoy approximately 18 km to the north. These will be considered in the LVIA. The Castle of Mey is also assessed as part of the separate cultural heritage assessment, however Melsetter House is not as it is not anticipated to be subject to impact (see Sheet 04 Cultural Heritage for further information).

WLAs are not a statutory designation. However, National Planning Framework 3 seeks to "...continue our strong protection for our wildest landscapes – wild land is a nationally important asset." Scottish Planning Policy (SPP) requires that Development Plans "...identify and safeguard the character of areas of wild land as identified on the 2014 SNH map of wild land areas." WLA also fall into the category of Group 2: Areas of significant protection with regard to spatial frameworks for wind energy development (SPP, Table 1, page 39).

The nearest WLA to the Site is WLA 41: Hoy, the southern boundary of which is approximately 20 km to the north. WLA 36 Causeymire and Knockfin Flows is 24 km to the south south west and WLA 39: East Halladale Flows is approximately 27 km to the south west.

Visual Receptors

The following visual receptors are present in the study area and would potentially be affected by the proposed Development:

- residents of the locality;
- tourists and visitors to the area including those visiting areas of scenic, cultural or historic value;

- people participating in outdoor recreational activities where their attention may be focussed on the landscape and views including users of long-distance routes, cycle routes, rights of way and core paths;
- hill walkers; and
- people using transport routes (roads, rail and ferry routes).

Potentially Significant Effects

Having regard to the nature of the proposed Development, key baseline characteristics and proposed embedded mitigation measures, it is considered that the following aspects have the potential for significant environmental effects primarily during the operational phase of the proposed Development, and will therefore require further consideration through the EIA process:

- effects on Castle of Mey GDL;
- effects on Hoy and West Mainland NSA;
- effects on LCT 134 Sweeping Moorlands and Flows, LCT 143 Farmed Lowland Plain and LCT 144 Coastal Crofts and Small Farms;
- effects on the special qualities and character of Dunnet Head SLA and Duncansby Head SLA;
- changes to views experienced by people in residential properties and settlements;
- changes to views experienced by people visiting the area including the North Coast 500 route, Dunnet Head and Duncansby Head;
- changes in views experienced by people cycling along National Cycle Network route 1 to the north of the Site;
- changes in views experienced by people walking on core paths in the vicinity of the Site;
- changes in views experienced by motorists travelling on local roads in the vicinity of the Site and on the A836;
- changes in views experienced by people approaching Gills Bay ferry terminal on the St Margaret's Hope to Gills Bay ferry; and
- cumulative effects on residents in the locality and people participating in outdoor recreational activities in the vicinity.

Proposed Assessment Methodology and Approach

The LVIA will be undertaken by Chartered Landscape Architects with considerable experience of siting, design and LVIA, of onshore windfarms. The main source of guidance used will be Guidelines for Landscape and Visual Impact Assessment (GLVIA3)².

The LVIA will assess direct and indirect effects on landscape character and the special qualities of designated landscapes and WLA. The LVIA will also assess the potential effects of the proposed Development on visual amenity and views. Cumulative effects i.e. the effects of the addition of the proposed Development in combination and sequentially with other windfarm developments will be assessed.

The overall approach for the assessment of effects on landscape and visual receptors will broadly follow three stages of desk-based baseline assessment, fieldwork, assessment and reporting with design iteration occurring throughout the LVIA.

The proposed Development would comprise wind turbines up to 150 m in height. SNH guidance advises that a study area of 45 km should be considered for wind turbines greater than 150 m in height. The pattern of visibility shown on the ZTV map (Figure 7.3) and the distribution of designated landscapes and WLAs shown on Figure 7.2 indicates that a 40 km study area will be appropriate.

² Landscape Institute and Institute of Environmental Management and Assessment (2013) Guidelines for Landscape and Visual Impact Assessment, Third Edition (Routledge, London).

Design Iteration

The principle means of landscape and visual mitigation is in the design of the proposed Development. The outcome of the LVIA will be an assessment of the residual effects of the proposed Development on landscape and visual amenity. However, throughout the LVIA there will be iterations of design as the LVIA team provides inputs to the wider windfarm design team to be analysed alongside the other design considerations that need to be addressed.

THC's preapplication advice indicates the need to consider the relationship between landscape character and the scale of the proposed Development including the relationship with the small-scale seaboard landscapes to the north of the Site.

SNH guidance identifies aspects of landscape that should be considered when siting and designing a windfarm. The design of the proposed Development will consider these factors and seek to achieve a coherent and structured layout that responds appropriately to the underlying landscape and visual character of the area. The design of the proposed Development will be appraised against relevant criteria relating to landscape and visual aspects as set out in the OWESG.

Siting and design of ancillary development will also be a design consideration particularly in relation to more sensitive receptors or those likely to be affected most.

The relationship of the proposed Development with other existing and proposed wind energy development will also be an important consideration.

Assessment of Effects on Landscape

Physical changes to landscape features within the Site will be assessed and direct effects on landscape character of the LCT in which the proposed Development would be located will be assessed. Indirect effects on LCTs in the study area from which the ZTV indicates there would be theoretical visibility will also be assessed. The effects on the special qualities and characteristics of designated landscapes as set out in the relevant citation will be assessed.

An assessment of landscape sensitivity will be made through an evaluation of landscape value and susceptibility to change as advised in GLVIA3. Magnitude of effects on landscape will be assessed in terms of the size or scale of change to the baseline, the geographical extent of effects and the duration or reversibility of effects. The assessment of magnitude of effect will consider these aspects in relation to the key characteristics and special qualities of the receiving landscape.

Significance of effect will be assessed by combining judgements about sensitivity and magnitude and a clear distinction between different levels of significance will be described and judgements clearly set out. The assessment will distinguish between significant effects of more importance that are likely to influence decision making and those of effects of lesser importance.

Assessment of Effects on Visual Amenity

The proposed Development has the potential to result in changes to the visual amenity and views experienced by people in the study area. The degree to which people (visual receptors) experience change would depend on whether they are static (e.g. residential locations, viewpoints such as Dunnet Head) or moving (e.g. along footpaths, roads, rail or ferry routes). Visual receptors will be grouped according to the activity being undertaken e.g. residents, outdoor recreation, motorists and public transport users.

The sensitivity of visual receptors will be assessed in accordance with GLVIA3 which advises that this will be a combination of judgements about susceptibility of the receptor to change and the value attached to views.

The visual receptors identified in this Information Sheet have been informed by the Council's pre-application advice and with reference to the Lyth appeal decision.

The assessment of visual effects will be informed by analysis of individual and cumulative ZTV maps, fieldwork and assessment of viewpoints. Proposed viewpoints are shown on Figure 7.3 and listed in Table 7.1 with the reason for selection. The viewpoints shown capture a representative range of visual receptors that would potentially be affected by the proposed Development. The list of viewpoints and their locations will be refined through fieldwork and through consultation with stakeholders and by the scoping process.

Table 7.1: Proposed Viewpoints

VP No.	Viewpoint Title	Easting	Northing	Distance and Direction to Application Boundary	Reason for Inclusion
1	North Hoy and West Mainland NSA	318582	999177	28 km to the south	NSA and footpath to The Old Man of Hoy.
2	Burwick, South Ronaldsay	344278	983904	17.5 km to the south west	SNH requested 2019. Closest visitor destination in Orkney.
3	Gills Bay Ferry	337286	976429	7 km to the south west	Tourists and visitors using the ferry, SNH requested 2019.
4	Dunnet Head Trig Point	320534	976491	8.5 km to the south east	Visitor destination, walkers, SLA.
5	Castle of Mey GDL	329026	973676	2 km to the south	GDL, residents and road users
6	Duncansby Head	340520	973260	9 km to the west	Visitor destination, walkers, SLA.
7	A836 West of Thurso	308641	969419	19 km to the east	North Coast 500, A836.
8	Barrock	325907	971363	2 km to the east	Residents, users of NVN route 1.
9	Brabster	332054	969750	1.5 km to the west	Residents.
10	A99 Warth Hill	337169	969882	5.5 km to the west	Recognised viewpoint on A99, North Coast 500, SNH requested 2019.
11	Lochend	325623	966682	2.6 km to the north east	Residents, users of local roads.
12	Bower	323827	962213	7 km to the north east	Residents, users of local roads, SNH requested 2019.
13	Lyth	328149	963405	4.2 km to the north	Residents, users of local roads.
14	Keiss	334662	961398	8.3 km to the north west	Residents, users of local roads.
15	Ben Dorrey	306463	955068	25 km to the north east	Hill walkers, SNH requested 2019.
16	A9 Georgemas Junction	315682	958684	15.5 km to the north east	Road and rail users.
17	Watton	323802	954680	13.5 km to the north	Road and rail users, SNH requested 2019.
18	Noss Head	338159	954681	16 km to the north west	Visitor destination, walkers, SNH requested 2019.
19	A9 near Rangag	317715	945772	24 km to the north north east	Users of A9, SNH requested 2019.

VP No.	Viewpoint Title	Easting	Northing	Distance and Direction to Application Boundary	Reason for Inclusion
20	Badlipster	324654	949249	19 km to the north	Users of minor road, SNH requested 2019.
21	Thrumster	333801	945388	22.5 km to the north north west	Users of A99, North Coast 500, SNH requested 2019.

Visualisations

Visualisations will comprise wirelines and photomontages from each viewpoint used in the LVIA. Visualisations will be shown with a photograph of the existing view with the exception of Viewpoint 1 North Hoy and West Mainland NSA, Viewpoint 2 Burwick South Ronaldsay and Viewpoint 3 Gills Bay Ferry which will be wirelines only. Photomontages will show a computer generated static model of the proposed Development overlaid onto photographs of the existing view to indicate what it would look like during operation and to inform an assessment of change against baseline. The wirelines for each viewpoint will show other windfarm developments visible from each viewpoint location.

Photomontages for viewpoints within 5 km of the proposed Development will show ancillary development at the Site such as permanent meteorological mast and access tracks, where these elements are visible. At distances of greater than 5 km ancillary development is likely to make a very limited change to views as part of the overall development and therefore will not be shown. Photomontages for viewpoints within 5 km of the proposed Development will also show solar panels and ancillary development associated with the solar array.

Visualisations will be prepared in accordance with SNH's Visual Representation of Wind Farms Version 2.2 (2017) and THCs Visualisation Standards for Wind Energy Development (July 2016).

Cumulative Development

An assessment of the effects of the proposed Development in combination with and sequential with other windfarms within 40 km of the proposed Development will be undertaken. The cumulative LVIA (CLVIA) will include operational windfarms, windfarms under construction, windfarms that are consented but not yet constructed and windfarms for which a valid planning application has been submitted (including those that are the subject of an Appeal). The CLVIA will include single wind turbines within 5km of the proposed Development that are over 20 m in height. Windfarms at scoping stage will not be included.

Combined visibility of the proposed Development with other windfarms will be shown using cumulative ZTV maps and in the wirelines at each viewpoint. Cumulative ZTV maps will be used to identify places where a more detailed assessment of sequential visibility may need to be undertaken e.g. key routes, and wirelines will be used to inform the assessment of effects. Figure 7.4 shows cumulative windfarms within 40 km and the wider area that will be considered in the CLVIA and Table 2 lists those that will be assessed.

The CLVIA will be undertaken in accordance with GLVIA3 and SNH guidance Assessing the Cumulative Impact of Onshore Wind Energy Developments (2012).

Table 7.2: Cumulative Windfarm Developments

Wind Farm	Status	No.Turbines	Tip Height (m)	Approximate Distance from Site Centre (km)
Lochend	Operational	4	99.5	1.5
Slickly	In Planning	11	149.9	4.4
Taigh Na Muir, Dunnet	Operational	1	79.6	4.5
Stroupster	Operational	13	110	5.3
Cogle Moss	Approved	12	100	13.0
Bilbster	Operational	3	93	18.0
Wathegar	Operational	5	100	19.0

Wind Farm	Status	No.Turbines	Tip Height (m)	Approximate Distance from Site Centre (km)
Achairn	Operational	3	100	19.0
Wathegar 2	Operational	9	110	19.4
Camster II	In Planning	11	126.5	19.9
Halsary	Under Construction	15	112	20.9
Hoy Community	Consented	2	74	21.0
Camster	Operational	25	100	21.4
Hesta Head	Consented	5	125	21.5
Achlachan	Operational	5	115	22.4
Achlachan 2	Approved	3	110	22.8
Bad a' Cheo	Operational	13	112	22.8
Causeymire	Operational	21	101	23.3
Baillie	Operational	21	115	25.9
Forss 1	Operational	2	76	26.6
Forss 2	Operational	4	78	27.3
Burn of Whilk	Operational	9	116	28.0
Golticlay	In Planning	19	130	29.4
Rumster Community WEP	Approved	3	75	30.0
Limekiln Resubmission	Approved	24	139	30.9
Buolfruch	Operational	15	75	36.3
Dounreay Tri Offshore	Approved	2	201	37.0
Berriedale and Dunbeath	Approved	3	74	39.6
Strathy Wood	In Planning	16	145	47.5
Strathy North	Operational	33	110	48.2
Strathy South	Approved	39	135	50.9
Bettyhill	Operational	2	119	55.7

Issues to be Scoped In or Out

It is considered that a detailed wild land assessment will not be required due to the separation distance. The CLVIA will exclude large offshore windfarms from the assessment of effects due to separation distance from the proposed Development and their position 15 km offshore to the south south east.

Consultees

The consultees below will be approached for information to inform the EIA. These consultees may also be contacted by the Scottish Government regarding the scope of the EIA:

- The Highland Council
- SNH

Consultee Questions

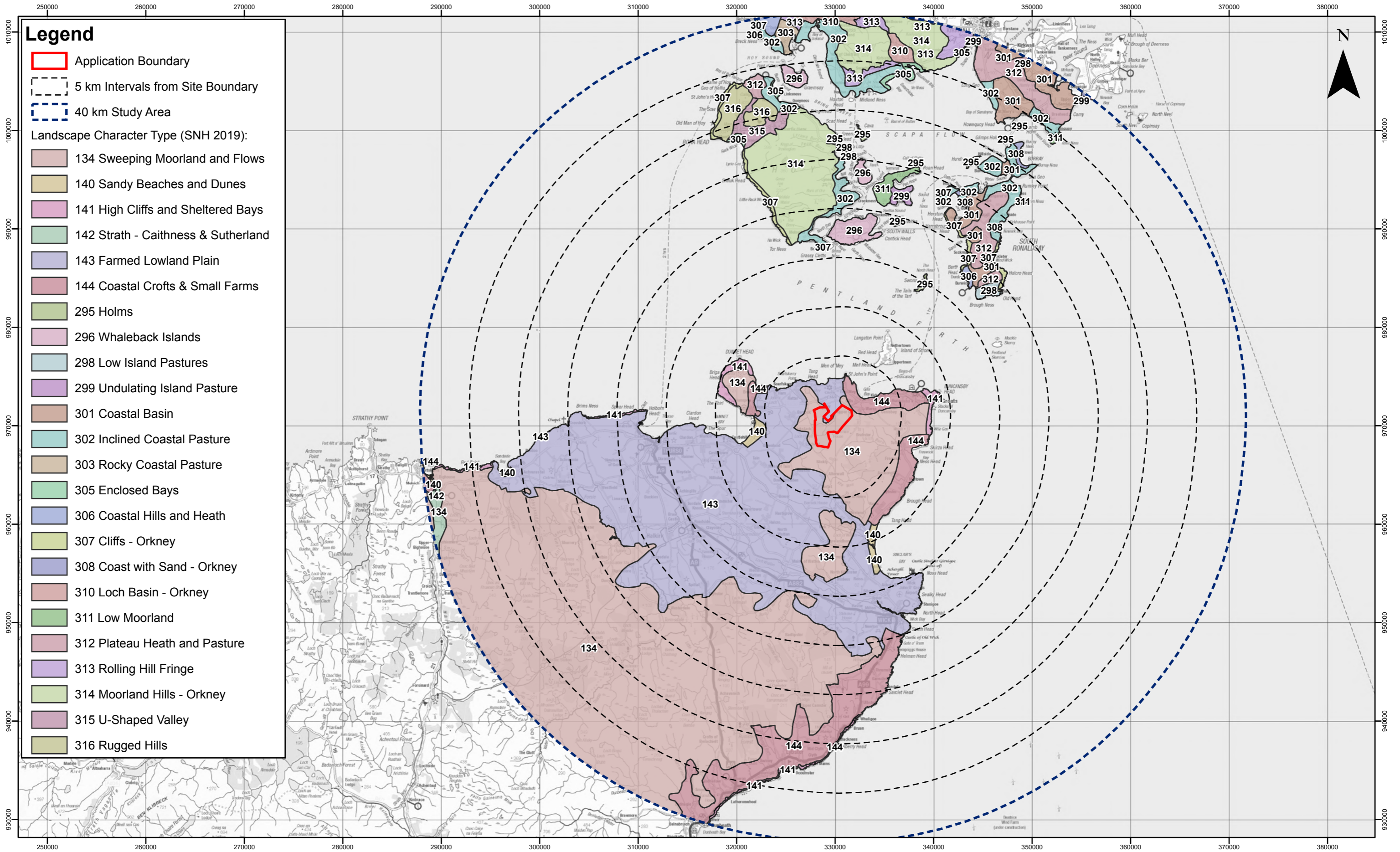
- Is the spatial extent of the study area considered to be appropriate?
- Are the proposed viewpoints considered to be appropriate?
- Do consultees agree that a detailed wild land assessment is not required?
- Is the proposed scope of the assessment of aviation obstruction lighting acceptable?
- Is the list of cumulative windfarms complete?

- Please confirm any additional requirements that you consider should be included in this part of the EIA, that have not been covered in this fact sheet.

Relevant Policy and Guidance

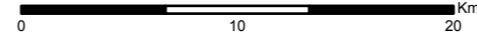
The assessment will be undertaken in accordance with the following relevant legislation and guidance:

- Landscape Institute, (2019). Technical Guidance Note 6/19 Visual Representation of Development Proposals;
- Landscape Institute, (2019). Technical Guidance Note 2/19 Residential Visual Amenity Assessment;
- Landscape Institute and Institute of Environmental Management and Assessment (2013) Guidelines for Landscape and Visual Impact Assessment, Third Edition;
- Natural England, (2019). An Approach to Landscape Sensitivity Assessment;
- Natural England, (2014). An Approach to Landscape Character Assessment;
- Scottish Natural Heritage, (2017). Siting and Designing Wind Farms in the Landscape Version 3a;
- Scottish Natural Heritage, (2017). Visual Representation of Wind Farms Version 2.2;
- Scottish Natural Heritage, (2012). Assessing the Cumulative Impact of Onshore Wind Energy Developments;
- The Countryside Agency and Scottish Natural Heritage (2002) Landscape Character Assessment Guidance for England and Scotland;
- The Highland Council, (2017). Landscape Sensitivity Appraisal: Black Isle, Surrounding Hills, Moray Firth Coast and Caithness;
- The Highland Council, (2016). Onshore Wind Energy Supplementary Guidance; and
- The Highland Council, (2016). Visualisation Standards for Wind Energy Development.
- The Highland Council, (2012). Highland-wide Local Development Plan (HwLDP).
- The Highland Council, (2018). Caithness and Sutherland Local Development Plan (CaSPlan).



C	14/07/2020	AJ	RLB updated.
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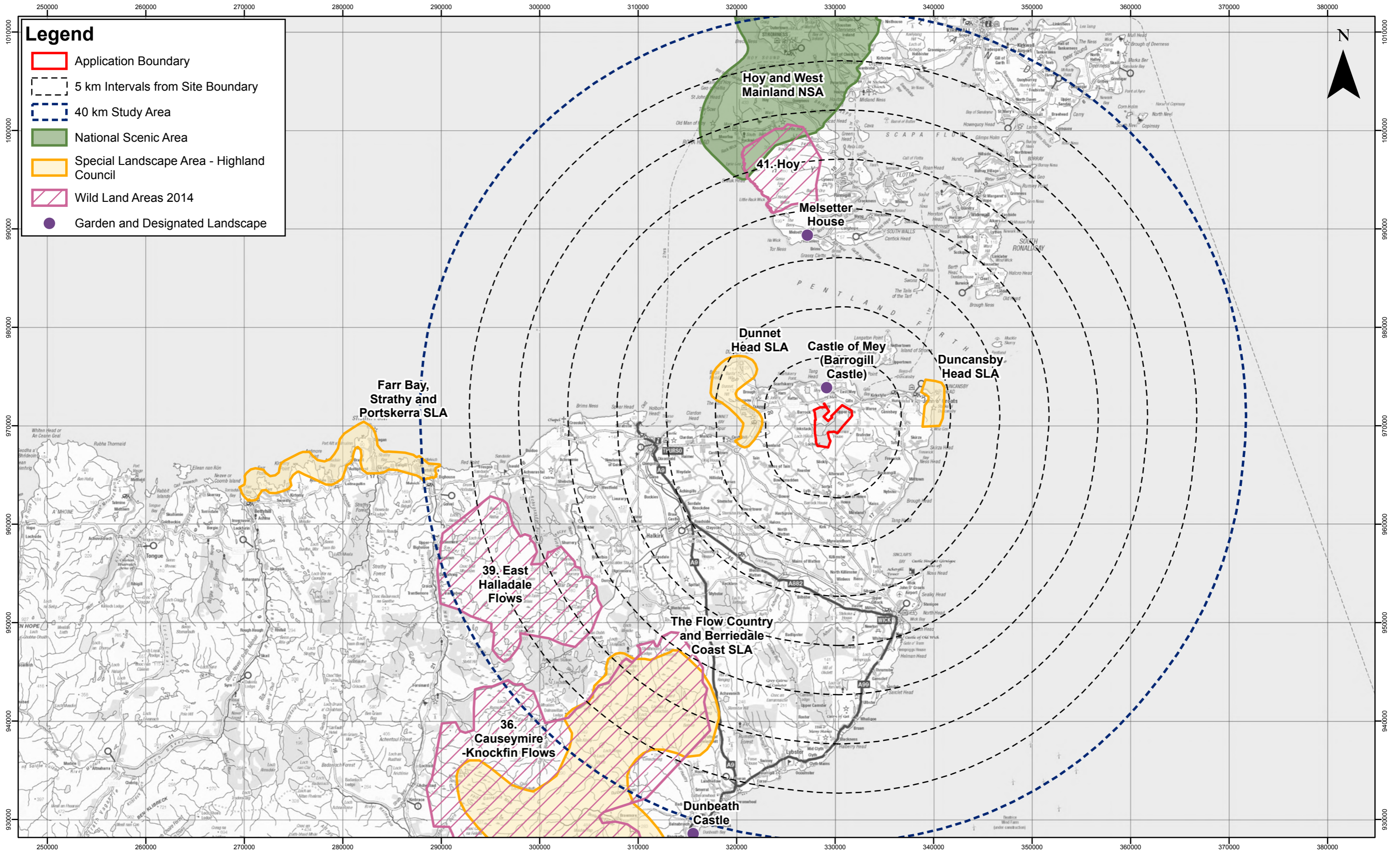
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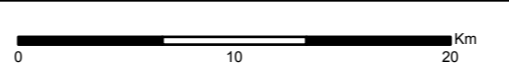
Hollandmey Renewable Energy Development Landscape Character

Drg No	HMY_C_029	
Rev	C	Datum: OSGB36
Date	14/07/2020	Projection: TM
Figure	7.1	



C	14/07/2020	AJ	RLB updated.
B	01/07/2020	AJ	Application boundary updated.
A	29/05/2020	DL	First Issue.
Rev	Date	By	Comment

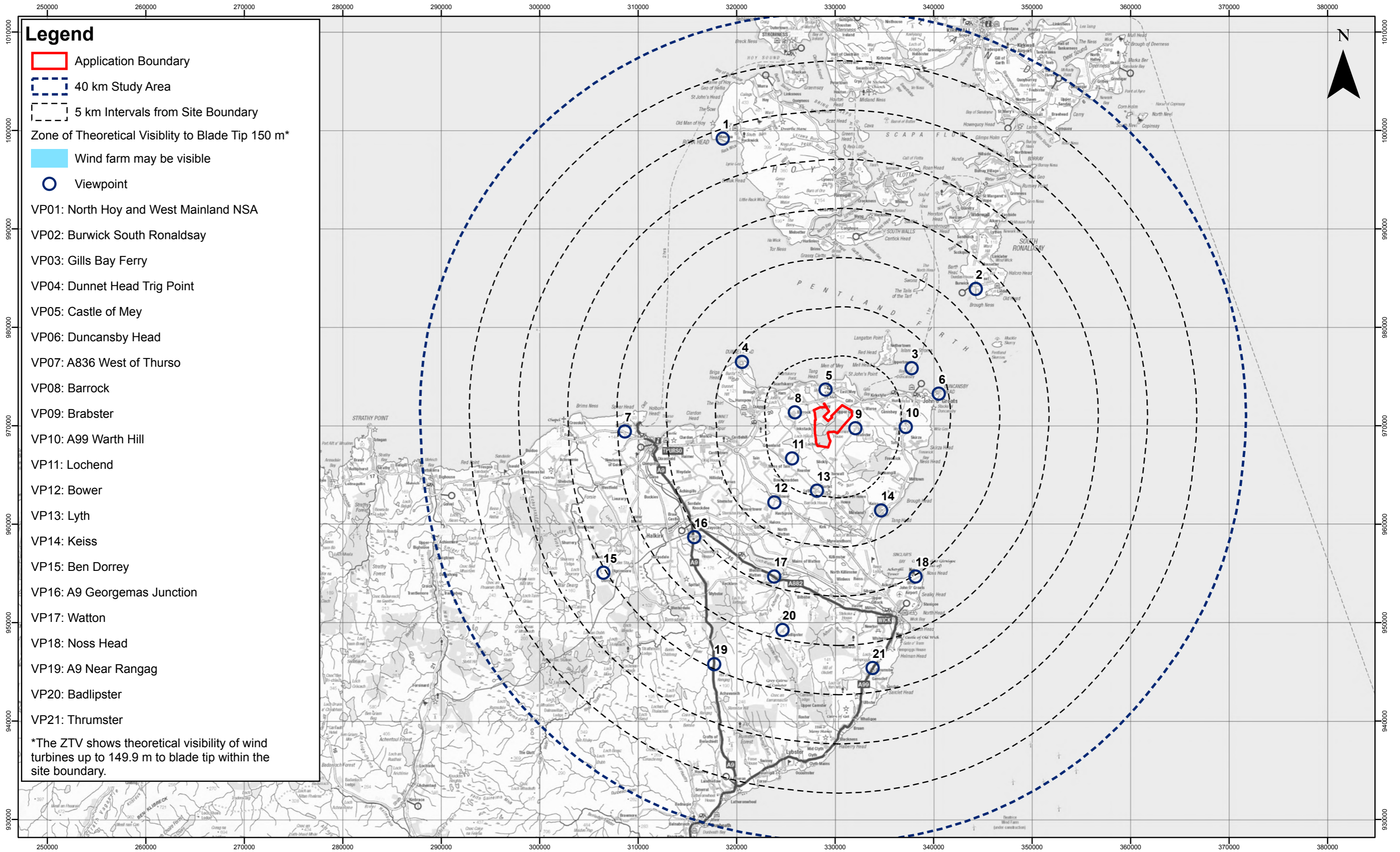
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Hollandmey Renewable Energy Development Designated Landscapes and Wild Land Areas

Drg No	HMY_C_030	
Rev	B	Datum: OSGB36
Date	14/07/2020	Projection: TM
Figure	7.2	



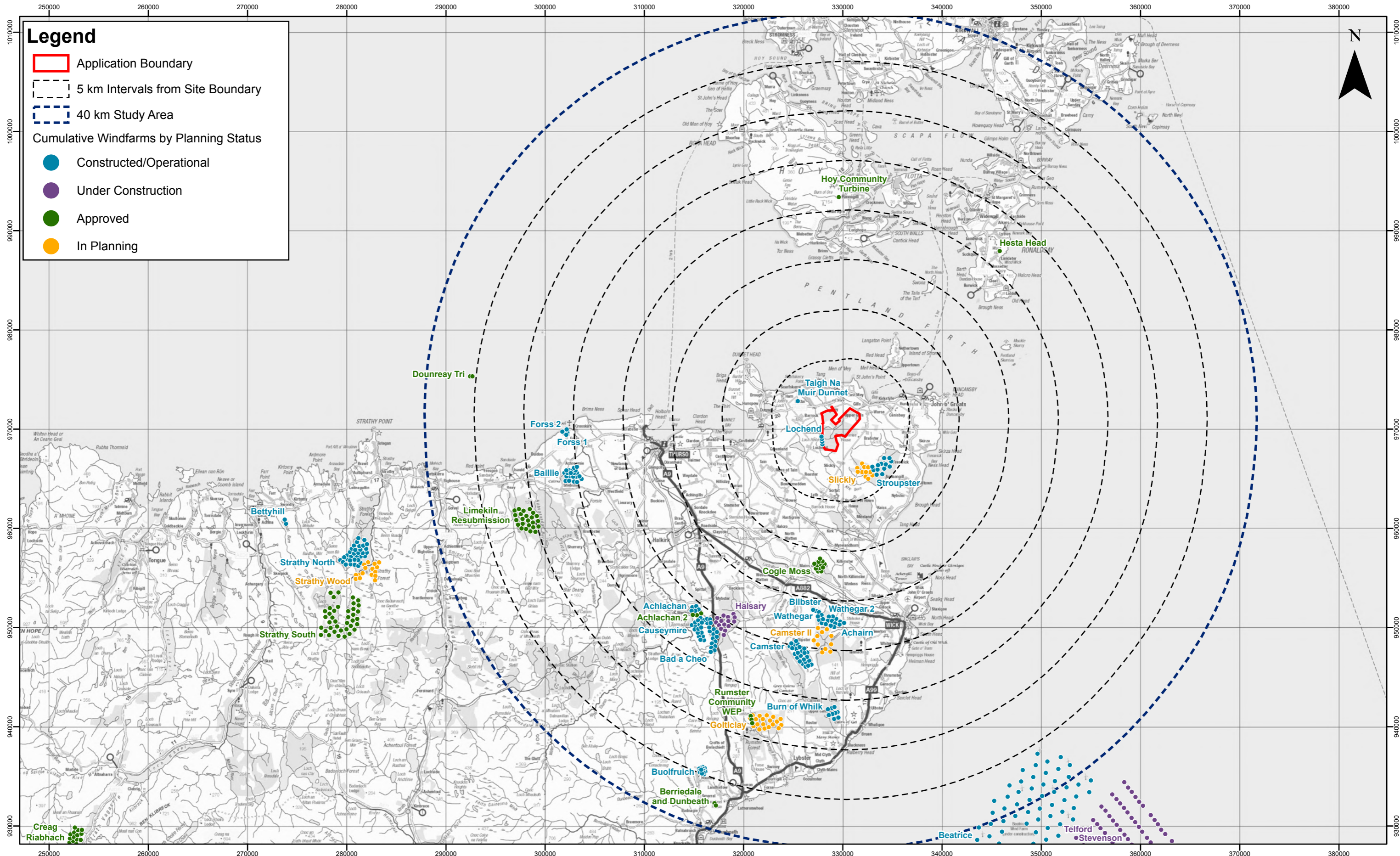
Legend

- Application Boundary
- 40 km Study Area
- 5 km Intervals from Site Boundary
- Zone of Theoretical Visibility to Blade Tip 150 m*
- Wind farm may be visible
- Viewpoint

VP01: North Hoy and West Mainland NSA
 VP02: Burwick South Ronaldsay
 VP03: Gills Bay Ferry
 VP04: Dunnet Head Trig Point
 VP05: Castle of Mey
 VP06: Duncansby Head
 VP07: A836 West of Thurso
 VP08: Barrock
 VP09: Brabster
 VP10: A99 Warth Hill
 VP11: Lochend
 VP12: Bower
 VP13: Lyth
 VP14: Keiss
 VP15: Ben Dorrey
 VP16: A9 Georgemas Junction
 VP17: Watton
 VP18: Noss Head
 VP19: A9 Near Rangag
 VP20: Badlipster
 VP21: Thrumster

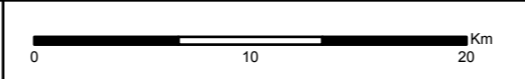
*The ZTV shows theoretical visibility of wind turbines up to 149.9 m to blade tip within the site boundary.

	D	14/07/2020	AJ	RLB changed.	1:350,000 Scale @ A3		Hollandmey Renewable Energy Development Blade Tip Height (150 m) ZTV and Viewpoint Locations	Drg No	HMY_C_018	
	C	01/07/2020	AJ	RLB reverted to original.				Rev	D	Datum:
	B	29/05/2020	DL	Revised Site Boundary	© Crown Copyright 2020. All rights reserved. Ordnance Survey Licence 0100031673.	Date		14/07/2020	Projection:	TM
	Rev	Date	By	Comment	Figure	7.3				



C	14/07/2020	AJ	RLB updated.
B	30/06/2020	AJ	Application boundary updated.
A	29/05/2020	DL	First Issue.
Rev	Date	By	Comment

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Hollandmey Renewable Energy Development Cumulative Windfarm Developments

Drg No	HMY_C_031	
Rev	C	Datum: OSGB36
Date	14/07/2020	Projection: TM
Figure	7.4	

Ornithology

Background

Pre-application advice for the proposed Development was requested from the Highland Council and a response provided in March 2019. Key issues relating to impacts on the ornithology, as provided by Scottish Natural Heritage (SNH) and additional relevant advisory bodies are summarised here.

Consultant Experience and Expertise

The technical lead for Ornithology will be Fiona Leckie from NRP. Fiona has degree in Zoology from Aberdeen University and has over 13 years' experience undertaking fieldwork on a number of proposed and existing windfarm sites in Scotland and Northern Ireland. As a project manager Fiona writes tenders and cost estimates for projects; liaises with clients, landowners and field surveyors; provides updates on continuing fieldwork; writes the Technical Reports once fieldwork is complete; and peer-reviews other project managers' reports as part of NRPs internal Quality Assurance mechanisms. Fiona is also part of the team which writes the Ornithology Assessment Chapters for Environmental Statements.

Baseline

The proposed Development occupies a site that is a conifer plantation surrounded by improved and rough-grazing and moorland areas (the Site).

The Site is not covered by any statutorily designated nature conservation site. The nearest designated sites include:

- Caithness and Sutherland Peatlands special protection area (SPA) and Ramsar site. This is approximately 1 km from the application boundary at its closest point and the qualifying interests are breeding birds: black-throated diver, red-throated diver, common scoter, wigeon, dunlin, wood sandpiper, golden plover, greenshank, golden eagle, hen harrier, merlin, short-eared owl and greylag goose.
- Caithness Lochs SPA and Ramsar site. Two component lochs (Loch of Mey and Loch Heilan) are nearby (approximately 1.5 km and 2 km at their nearest point respectively); the qualifying interests are the overwintering bird species: Greenland white-fronted goose, greylag goose and whooper swan.
- North Caithness Cliffs SPA. Three components of the SPA (Stroma, Dunnet Head and Duncansby Head) are nearby (approximately 3.5 km, 5 km and 7.5 km at their nearest points respectively), and the qualifying interests are breeding peregrine, fulmar, guillemot, razorbill, puffin, kittiwake, sandwich tern, arctic tern and seabird colony.
- Loch of Wester Site of Special Scientific Interest. This is approximately 8.5 km south of the application boundary and the qualifying interest is whooper swan that is non-breeding.

The following field-based baseline studies have been undertaken:

- Initial walkover surveys to provide an indication of which breeding bird species might be present on the proposed Development were undertaken during June and July 2017 within a 500 m buffer of the application boundary. A total of 22.75 hours of walkover and scans were undertaken on two days in each month.
- Between October 2017 and April 2018 surveys of goose and swan presence and activity around the proposed Development and the nearby SPA lochs were conducted.
- A full suite of field surveys following SNH Guidance (SNH, 2017¹) commenced in April 2018 and continued until March 2020, providing two full years of surveys. These surveys were completed within the relevant buffers from the proposed Development footprint (500 m, 1 km and 2 km, Figure 8.1²) and included:

¹ SNH Guidance: Recommended bird survey methods to inform impact assessment of onshore wind farms.

² The survey area does not cover the entirety of the Site but does cover the extent of the area where any potential turbines might be sited.

- flight activity surveys from two generic vantage point locations (GVP) (Figure 8.2) with at least 36 hours of watches during each of the breeding seasons (April to August 2018 and 2019) and the non-breeding seasons (September 2018 to March 2019 and September 2019 to March 2020), totalling 288 hours over the two years;
- additional flight activity surveys were carried out during the spring and autumn migration periods for 36 hours from one migration watch point location (MWP) in each season (March to May 2018 and 2019 and September to November 2018 and 2019) to gather information on movements of geese, swans and waders, totalling 144 hours over the two years;
- searches for scarce breeding raptors and owls within suitable habitats within a 2 km survey buffer, where access was granted. Where possible areas with no access permission were watched over. Searches focussed on species most likely to occur in the available habitats, including: hen harrier, merlin, short-eared owl and barn owl, totalling 103 hours over the two years;
- surveys for breeding waders were completed within the small amount of open ground within the 500 m buffer of the proposed Development during 2018;
- further searches of nearby lochs and fields for wintering geese and swans were conducted during October 2018 to April 2019 and October 2019 to March 2020 to add to those from 2017/2018;
- watches for signs of winter roosting by hen harriers were carried out over suitable habitats (where possible) within the 2 km survey buffer during the months of October to March in the winters of 2018/2019 and 2019/2020; and
- during the non-breeding period walkovers within the 500 m buffer were completed to complement the breeding season walkovers.

Please note that the results presented here have not been tailored to the proposed Development layout or turbine heights (as the initial design phase is yet to commence), and so may differ slightly when presented in the final assessment.

Field survey results indicate that there are no scarce birds of conservation concern breeding or roosting within the survey buffers of the Site.

Over the two years of survey, a large number of flights by greylag geese and pink-footed geese were recorded. The majority of these appear to be around the improved grazing fields that lie around 1 km to the north of the proposed Development. Further detailed analysis of the flock sizes and flight elevations will be carried out as part of the assessment process (see below).

A small number of flights by hen harrier were also recorded mainly in the open ground areas that occur in the periphery of the 500m buffer. While a small number of flights by whooper swan were recorded, in similar areas to the geese flights. Golden plover, curlew and dunlin were all recorded in flight and appear to favour the open ground areas.

Potential Effects

A full assessment of the results of the field surveys will be undertaken with regards to the potential effects on birds associated with the construction and operation of the proposed Development, which may include:

- a short-term reduction in breeding or wintering bird populations because of construction disturbance;
- a permanent reduction in breeding or wintering bird populations because of the loss of habitat critical for nesting, roosting or feeding;
- a permanent reduction in breeding or wintering populations because of the loss of individuals through collision with the turbines; and
- cumulative effects with other nearby developments that are operational during the same period, and/or with other developments that pose either a potential collision risk or loss of habitat.

Proposed Assessment Methodology and Approach

Baseline

The results of the surveys along with consultations and desk studies will be used to illustrate the current baseline of the Site.

Assessment of Effects

In assessing whether an effect is significant or not, three factors will be considered:

- the Nature Conservation Importance (NCI) of the species involved;
- the magnitude of the likely effects; and
- the conservation status of the species.

Determining Significance

Following the classification of each species' NCI and consideration of each effect, professional judgement will be used to make a reasoned argument of the likely effect on the conservation status of each potentially affected species. In accordance with the EIA Regulations, each likely effect will be evaluated and classified as either significant or not significant, in the context of the status of, and trends within, regional populations, as defined by SNH Natural Heritage Zones (NHZs). In this case NHZ 2: North Caithness and Orkney.

Mitigation

If any effects are deemed to be significant, necessary measures to mitigate the effects will be presented.

Cumulative Assessment

A cumulative assessment will consider development proposals within the relevant NHZ that are operational during the same period, and/or with other development that pose either a potential collision risk or loss of habitat.

Habitats Regulations Appraisal (HRA)

Due to the proximity of the proposed Development to parts of three SPAs (and two corresponding Ramsar sites), and the species observed during the field surveys, a shadow HRA for the Caithness and Sutherland Peatlands SPA and Ramsar and the Caithness Lochs SPA and Ramsar will be produced to aid the competent authority in their decision on whether there would be any effect on the designated sites.

Issues to be Scoped In or Out

Until the results are examined in detail all effects on all species will be scoped in to the assessment. As no species that are qualifying interests for the North Caithness Cliffs SPA were observed within any of the survey boundaries effects on this site can be scoped out.

Consultees

The consultees below will be approached for information to inform the EIA. These consultees may also be contacted by the Scottish Government regarding the scope of the EIA:

- Scottish Natural Heritage
- The Highland Council

Consultee Questions

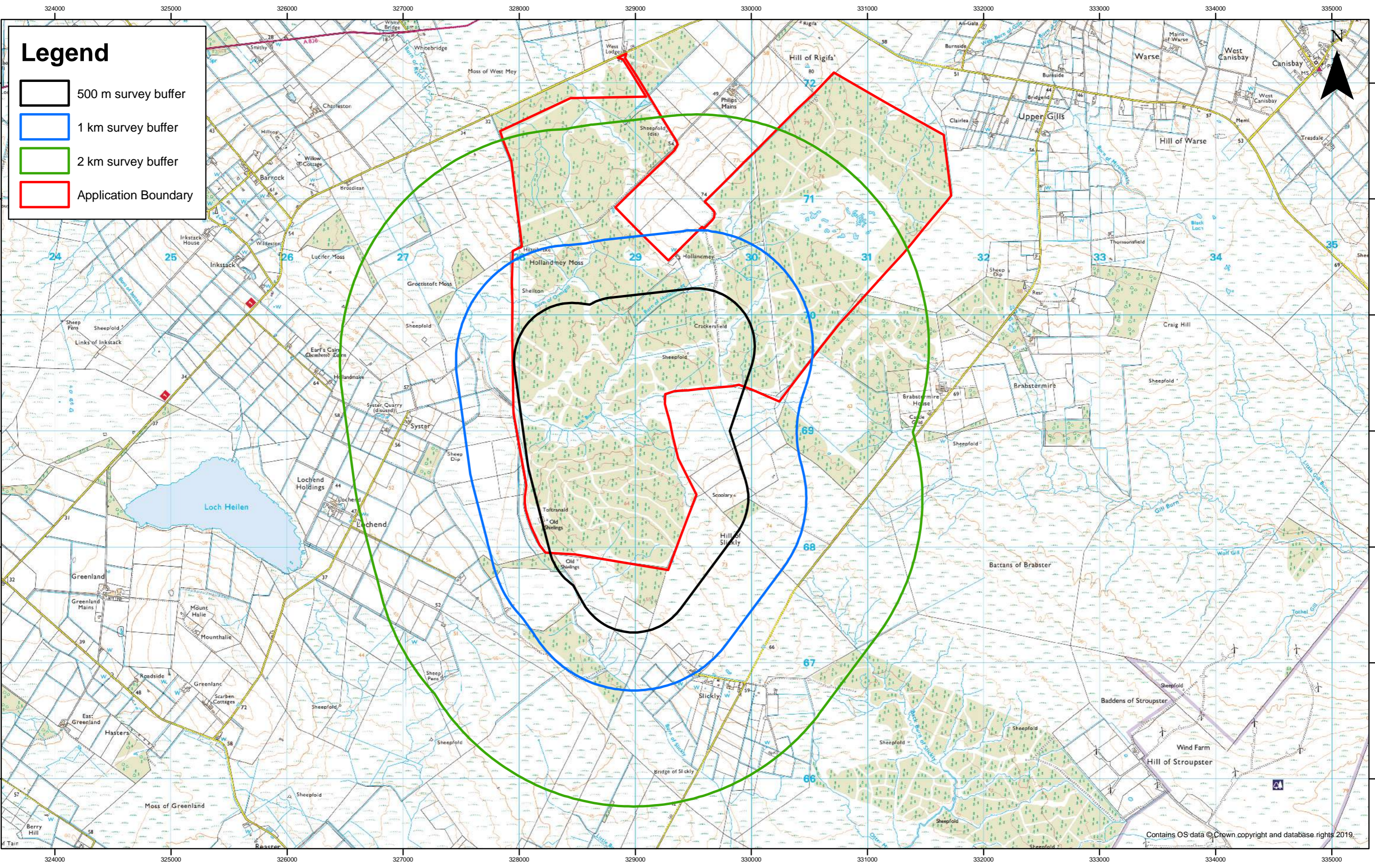
- Do the consultees agree with the proposed approach to the ornithology assessment as set out above?
- Please confirm any additional requirements that you consider should be included in this element of the EIA, which have not been covered in this information note.

Relevant Policy and Guidance

The assessment will be undertaken in line with the following legislation, policy and guidance:

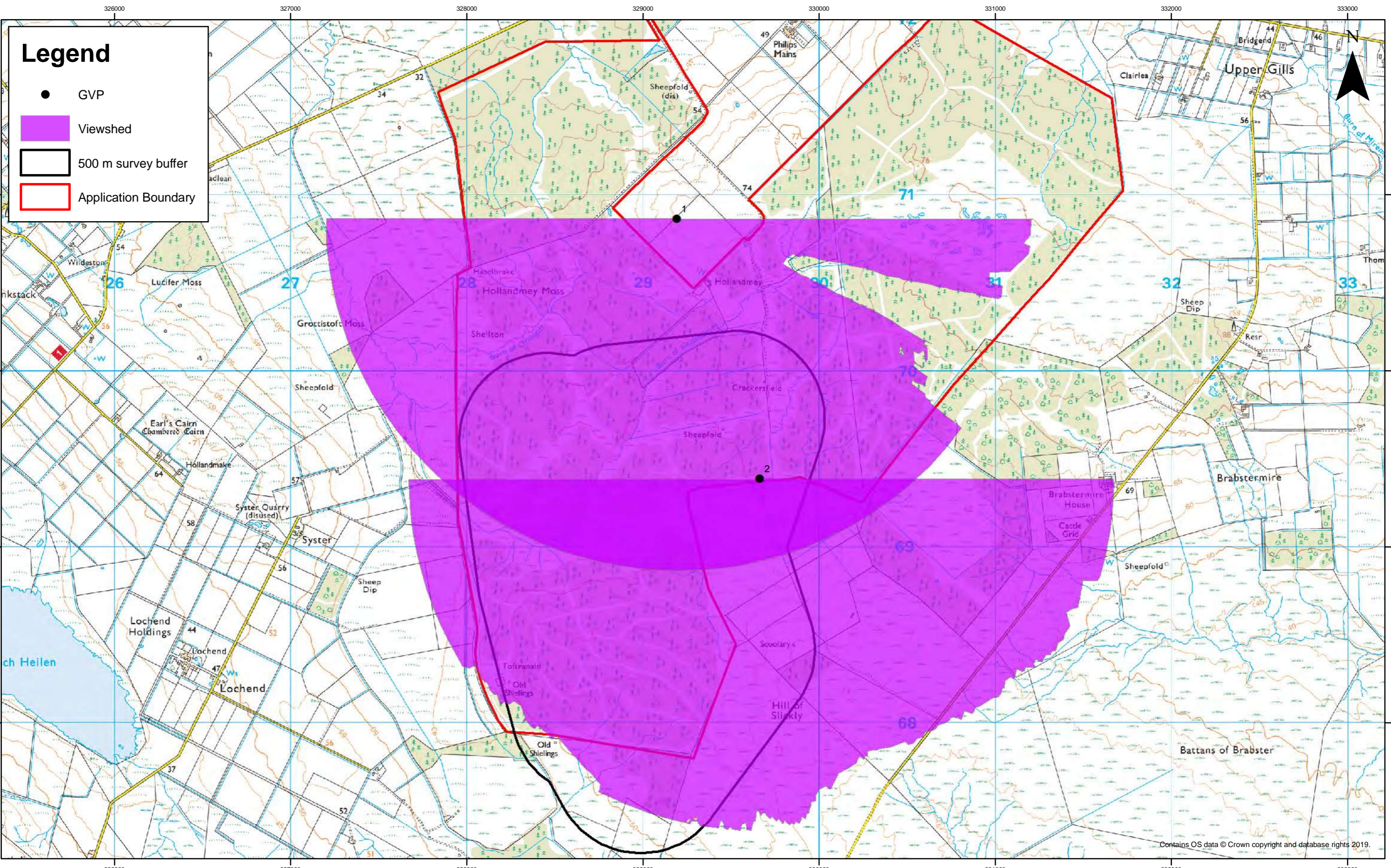
- Environmental Impact Assessment Directive 2014/52/EU.
- Directive 2009/147/EC on the Conservation of Wild Birds (the Birds Directive).
- The Conservation (Natural Habitats, &c) Regulations 1994 (as amended) ('the Habitats Regulations').

- The Wildlife and Countryside Act (as amended).
- The Nature Conservation (Scotland) Act 2004 (as amended).
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.
- Scottish Natural Heritage, (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms.
- Scottish Natural Heritage, (2018). Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas.
- Scottish Natural Heritage, (2016). Assessing Connectivity with Special Protection Areas (SPAs).
- Scottish Natural Heritage, (2017). Use of avoidance rates in the SNH wind farm collision risk model.
- The Highland Council, (2012). Highland-wide Local Development Plan (HwLDP).
- The Highland Council, (2018). Caithness and Sutherland Local Development Plan (CaSPlan).



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				1:30,000		Hollandmey Renewable Energy Development Ornithology Survey Buffers	Drg No				
	B	15/07/20	FL	Application boundary updated			Scale @ A3	Rev	B	Datum:	OSGB36
	A	20/05/20	FL	First Issue.			© Crown Copyright 2020. All rights reserved. Ordnance Survey Licence 0100031673.	Date	15/07/20	Projection:	TM
Rev	Date	By	Comment			Figure	8.1				

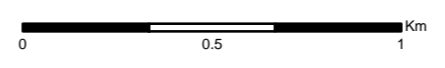


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A	20/05/20	FL	First Issue.

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Hollandmey Renewable Energy Development Vantage Points and Viewsheds

Drq No		
Rev	B	Datum: OSGB36
Date	15/07/20	Projection: TM
Figure	8.2	

Other Issues

Background

Pre-application advice for the proposed Development was requested from the Highland Council (THC) and a response provided in March 2019. The key aspects identified by THC Environmental Health relating to other issues are summarised here:

Consultant Experience and Expertise

The other issues section of the Environmental Impact Assessment Report will be compiled by RSK on behalf of Scottish Power Renewables supported by sub-consultants on certain specialist assessment sections. For each topic, the detailed assessment of likely significant effects will be undertaken by organisations with relevant specialist skills, drawing on their qualifications, experience of working on other development projects, good practice in EIA and on relevant published information.

Socio-Economic, Tourism and Recreation

Access rights, as provided by the Land Reform (Scotland) Act 2003, are exercisable throughout the majority of the Site and would continue to be so during the operation of any development. The use of the area of any proposed turbine locations for such access rights is limited at present though the development would provide an access resource for the public in terms of built tracks.

Public recreational access in the area of the development is focused on the coast, Dunnet Head/Dunnet Bay/Dunnet Forest, Duncansby Head etc. There is use of the A836 which forms part of the National Cycle Network route 1 and the A99 as part of the John O'Groats to Land End route for non-motorised means. There are several core paths within approximately 5km of the proposal, namely the Mey Link (CA05.16), Castle of Mey Coast (CA05.17), St John's Point (CA05.12), Old Road (CA07.4) and Stroupster Hill (CA08.07). The North Coast 500 (NC500) is located approximately 5 km from the Site at its closest point. 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 potential effects on visual amenity of these areas will be fully assessed in the EIA Report as part of the Landscape and Visual Impact Assessment.

In terms of impacts with a social implication, including recreation and tourism interests, there is a catalogue of research and survey that has concluded that there is no evidence to suggest windfarms have a significantly adverse effect on tourism. The most recent of these was produced by independent consultancy Biggar Economics (2017), which analysed the impact of Scottish windfarms on tourism-related employment.

The most comprehensive study of the potential effects of windfarms on tourism was undertaken by the Moffat Centre at Glasgow Caledonian University (2008). The study found that, although there may be minor effects on tourism providers and a small number of visitors may not visit Scotland in the future, the overall effect on tourism expenditure and employment would be very limited. This study is now almost 12 years old and in that time windfarms have become a more common feature in Scotland. A subsequent study by the James Hutton Institute (Dinnie 2012) concluded that there is no new evidence to contradict the earlier findings that windfarms have little or no adverse impact on tourism in Scotland.

It is therefore proposed that impacts upon tourism be scoped out of the EIA process.

More specifically relevant to Hollandmey, while in a wider region of Scotland that attracts tourists and recreational users interested in outdoor pursuits, the Site is privately owned and is forested and is not used for recreational purposes.

In terms of the wider area around the Site, the nearest major tourist attractions are:

- Queen Elizabeth Castle of Mey Trust which is located approximately 1.67 km north of the application boundary;
- RSPB Dunnet Head 9.18 km north west of the application boundary;
- Mary Anne's Cottage 6.78 km west of the application boundary;
- Duncansby Head 9.12 km north east of the application boundary;

- Castlehill Heritage Centre 8.42 km west of the application boundary;
- the village of John O'Groats 6 km north east of the application boundary;
- Dunnet Bay 6.3 km west of the application boundary;
- Wick Heritage Museum 18.93 km south east of the application boundary;
- Caithness Horizons 16.32 km west of the application boundary; and
- Caithness Broch Centre 8.65 km south east of the application boundary.

There are also a small number of properties affording accommodation in the wider area. While impacts are likely upon these resources to varying degrees, it is not anticipated that any of these effects would be significant.

SPR is also committed to the identification and implementation of access enhancement measures that will help facilitate greater use and enjoyment of the Site and wider access network. Examples that have been adopted for other SPR sites include creating new circular access routes, providing new visitor interpretation facilities at key locations, improving signposting, upgrading parking facilities and provision of bird hides. SPR will seek to identify suitable and proportionate opportunities for the Site through the public consultation and scoping exercise. Such enhancement opportunities have the potential for beneficial effects to the local community.

The proposed Development would also bring the potential for significant beneficial economic effects at a local level in relation to employment opportunities and the use of local services by construction workers. There will also be potential local employment opportunities during operation. Other socio-economic benefits that would arise from the proposed Development will be the establishment of a community benefit fund and the opportunity for local community groups to invest directly in the project. It is expected that these income streams could be used to support community projects within the local area.

Although the above access, recreation and other socio-economic benefits are not expected to be significant at a national or regional level, given their potential importance at a local and community level it is considered that their impacts should be fully assessed and reported in the EIA Report.

Dust and Air Quality

The main source of impact on air quality would be increased traffic flows on local roads during construction and emissions from construction activities including exhaust fumes and dust generated from quarrying activities associated with borrow pits and unmade ground from borrow pits and access tracks in dry conditions.

It is considered that the air emissions associated with these activities would be transient, localised and highly unlikely to have a significant effect upon local air quality given the lack of sensitive receptors close enough to experience these effects. In addition, there are well established best practice measures applied to construction that would form an integral part of the development process e.g. speed control, optimising deliveries to Site, dust control, restrictions on idling plant/vehicles, etc. These controls and measures will form an integral part of the Construction Environmental Management Plan (CEMP) for the development and will be detailed within the relevant parts of the EIA Report.

There would be no emissions to air during operation, with the only source being occasional vehicles accessing the Site for maintenance purposes. For the reasons cited above Air Quality is therefore scoped out from further assessment.

Shadow Flicker

Shadow flicker is an effect caused by the rotation of the turbine blades when the sun is shining, which can create a flickering or strobe like effect. This can be a cause of annoyance at residences near wind developments.

There are no formal guidelines currently available on what exposure would be acceptable in relation to shadow flicker. There is no standard for the assessment of shadow flicker. The Scottish Government's web-based guide relating to onshore wind turbines (Scottish Government 2013) suggests that as a general rule shadow flicker should not pose problems beyond a distance of 10 rotor diameters from a wind turbine, which equates to a maximum of 1500 m in this instance.

Section 2.43 (p20) of The Highland Council Interim Supplementary Guidance: Onshore Wind Energy (March, 2012) states, "*the Council will expect wind energy developments to be located at least a minimum distance equivalent to 10 times the blade diameter from any regularly occupied buildings not associated with the development*".

Department of Environment and Climate Change studies have shown that in northern latitudes shadows from wind turbines can only be cast 130 degrees either side of north relative to the turbine due to the orientation of the earth's axis and the positioning of the sun.

This equates to a region of 50 degrees either side of due south where a wind turbine would never cast a shadow and therefore properties within this region would experience no effects from shadow flicker.

The proposed Development will be designed where possible to avoid turbine placements within the Zone of Potential Shadow Flicker (ZPSF). Should this be achieved, it is proposed that shadow flicker be scoped out of the EIA. If not possible to avoid shadow flicker effects through turbine placement, then the dates, times and durations of shadow flicker events for each property within the ZPSF will be calculated and an assessment of effects at these properties included in the EIA.

Solar Glint and Glare

This section describes the proposed methodology for assessing solar glint and glare from potential solar panels during operation of the proposed Development. The inclusion of solar panels will be confirmed through the design process. If not included in the final design, there would be no requirement to assess these potential effects in the EIA.

Solar panels have varying reflectivity properties; however no solar panel absorbs 100% of incoming light. As a result, solar panels have the potential to produce solar reflection in the form of solar glint (a momentary flash of bright light) and solar glare (a continuous source of bright light). Solar glint will be witnessed by moderate to fast-moving receptors while solar glare will be encountered by static or slow-moving receptors with respect to a solar development.

Guidance states that common receptors of solar glint and glare effects are residents, road users, railway users and aviation operations. In this way, residents who have a view of solar panels may experience solar reflection which could impact upon residential amenity. The possibility of glint and glare effects from a proposed solar development can also lead to concerns with respect to the possible impact upon road and rail safety especially if the solar PV development is to be located next to a road with fast moving and/ or busy traffic or a railway line. In terms of aviation, concerns are most likely for aircraft that are approaching or departing an airport, where solar reflections could be mistaken for aviation lighting.

Based on a review of current studies and consultation responses, the following study areas for the above receptors are proposed:

- Identify the receptors of concern. In this instance the concern is reflections of the sun from the solar panels toward road users, dwellings, public routes and ATC/flight paths, particularly to the south of the solar array;
- Dwellings (also taken to incorporate nearby recreational users) – all properties/public paths within 1km that could have a direct view of the solar panels;
- Road users – all roads within 1km that may have a view of the solar panels;
- Railway users – railway lines within 100m which may have a direct view of the solar panels; and
- Aviation (air traffic controllers and pilots) – Air Traffic Control (ATC) towers and approach paths out to 30km.

In general terms, and based on the above guidance, the broad approach to the assessment will be as follows:

1. Identify the receptors of concern. In this instance the concern is reflections of the sun from the solar panels toward road users, dwellings, public routes and ATC/flight paths, particularly to the south of the solar array;
2. Choose appropriate receptor locations for the assessed roads, dwellings, routes and ATC/flight paths;
3. Define the proposed solar farm area and choose an appropriate assessment resolution;
4. Undertake geometric calculations to determine whether a solar reflection may occur at each receptor, and if so, when it will occur;
5. If a reflection will occur, determine whether the reflecting panels will be visible from the identified receptor locations or whether site topography or screening will limit visibility;

6. If it is calculated that a reflection will occur, consider the location of the solar reflection with respect to the location of the sun in the sky, its angle above the horizontal and the time of day at which a reflection could occur;
7. Determine whether the solar reflection is likely to be a significant hazard to safety; and
8. Consider mitigation such as shielding of the Site.

In relation to the guidance, a major effect is one where a solar reflection is geometrically possible and visible under conditions that will produce a significant impact.

Telecommunications

Wind turbines can potentially cause interference to telecommunication system signals such as terrestrial fixed microwave links, terrestrial radio telemetry links and television broadcasts through reflecting and shadowing telecommunication signals between transmitters and receivers.

The study area will comprise the Site and the wind turbine locations. Only telecommunication links which travel across the Site and close to the wind turbine locations have the potential to be impacted by the proposed Development and therefore there is no need to widen the study area.

Initial consultation has been undertaken with Ofgem who confirmed that there are two telecommunications links across the Site. The location of these links, and appropriate buffers, will be factored into the windfarm design to embed mitigation and avoid potential impacts. Further consultation will be undertaken through the EIA to update this baseline information and inform the assessment.

The potential effects on telecommunications assets arising from the proposed Development will be undertaken as part of the EIA. This will identify any issues requiring mitigation or detailed assessment, in consultation with telecommunications asset owners.

TV interference is now considered to be low risk due to analogue TV signals no longer being in use and so this aspect is proposed to be scoped out of the assessment. In the unlikely instance that TV interference occurs, it is considered that this can be appropriately covered by a suitably worded planning condition and complaints procedure to implement any necessary mitigation.

Aviation and Radar

The development of wind turbines has the potential to cause a variety of adverse effects on aviation during turbine operation. These include but are not limited to:

- Physical obstructions;
- Generation of unwanted returns on Primary Surveillance Radar (PSR); and
- Adverse effects on overall performance of Communication, Navigation and Surveillance (CNS) equipment.

Where line of sight exists between turbines and air traffic control radars it is possible that the turbines may be detected by the radar, dependent on atmospheric conditions, and appear as clutter on controllers' screens. Such clutter may have an adverse impact on air traffic control operations.

The proposed Development is in an area remote from military aviation infrastructure, approximately 13.5 km to the north of Wick Airport. The Site is outside the Aerodrome Traffic Zone, but underneath or close to several of the instrument approach procedures published for the airport that lie outside the protection of regulated airspace. It is immediately adjacent to the Operational Lochend Wind Farm.

An assessment of civil and military aviation issues will be undertaken. Input will be obtained from the specialist consultants should any issues be identified that require mitigation or detailed technical assessment, including line-of sight assessments.

Carbon Balance

The proposed Development once operational would generate zero carbon energy, which would help to offset the release of greenhouse gas emissions by fossil fuel-dependent energy generation. During their construction and decommissioning, however, renewable energy developments can themselves result in GHG emissions, for example from turbine manufacture and site preparation. This is particularly the case where natural carbon stores such as forestry or peat are present and potentially impacted by the development.

Peat surveys will be conducted to establish the depth and quality of peat on the Site. It is known that the Site contains areas of blanket bog listed as Class 1 peatland, these are areas considered to be nationally important carbon-rich soil and are afforded significant protection under Scottish Planning Policy.

During the design process, the wind turbines will be sited to avoid the areas of deepest peat as far as practicable and measures to minimise disturbance to peat especially during excavation will be considered. To minimise peat disturbance during construction and decommissioning Best Practicable Measures will also be considered that will be provided as part of the CEMP.

The resulting Carbon Balance Assessment will be prepared in accordance with IEMA's guidance document Assessing Greenhouse Gas Emissions and Evaluating their Significance in EIA (2017) and presented in the Other Issues chapter of the EIA report.

The prediction of future natural baselines is required under the EIA regulations to compare with future baselines that incorporate the proposed Development. Climate change will be considered in the prediction of future natural baselines based on the best available climate modelling, such as the UK Climate Projections project.

Population and Human Health

As per the 2017 EIA Regulations, an assessment of population and human health should be considered during the EIA process. It is proposed that this requirement will be covered through the findings of other assessments undertaken as part of the EIA process and so no dedicated EIA chapter will be produced.

Limited interactions with human health are possible, and consideration will be given to the findings of the following assessments in the EIA Report:

- Noise;
- Residential Amenity;
- Traffic and Transportation;
- Telecommunications;
- Aviation and Radar;
- Health and Safety at Work including best practice;
- Ice build-up on turbine blades and risk of ice throw;
- Lightning strike; and
- Risk of turbine failure and consideration of in-built emergency procedures and best practice.

Properly designed and maintained wind turbines are a safe technology. The site design and inbuilt buffers from sensitive receptors would minimise any risk to human health resulting from the operation of the turbines.

As the potential for risks associated with ice build-up and lightning strike are removed or reduced through inbuilt turbine mechanisms in modern machines it is proposed that this can be scoped out of the further assessment.

Effects on Traffic and Transportation; Noise; and Residential Amenity will be assessed in full elsewhere within the EIA Report.

Potentially significant effects are not anticipated from ice, lightning strike, or structural failures due to Health and safety best practice and a sensitive approach to layout design.

All other potential interactions with Human Health, building in Health and Safety best practice, and a sensitive approach to layout design, resulting from ice, lightning strike and structural failures are unlikely to occur and as a result potentially significant effects are not anticipated.

Vulnerability of the development to risks of major accidents and/or disasters (including climate change)

None of the following climate trends identified in UKCP18¹ could affect the proposed Development:

- increased temperature;

¹ <https://www.metoffice.gov.uk/pub/data/weather/uk/ukcp18/science-reports/UKCP18-Overview-report.pdf>

- changes in the frequency, intensity, and distribution of rainfall events (e.g. an increase in the contribution to winter rainfall from heavy precipitation events and decreases in summer rainfall); and
- sea level rise and associated coastal flood risk.

The possibility that the proposed Development would be exposed to windstorms could represent a risk; however, braking mechanisms installed on turbines allow them to be operated only under specific wind speeds and should severe windstorms be experienced, then the turbines would be shut down. As published mapping confirms that most of the Site is not located in an area identified as being at risk of flooding it is considered unlikely that flooding will pose a significant risk to the operation of the windfarm nor would the construction of the proposed Development contribute to flooding elsewhere. Therefore, it is considered unlikely that significant effects would arise as a result of the proposed Development, and this topic can be scoped out of the further assessment.

Consultees

The consultees below will be approached for information to inform the EIA. These consultees may also be contacted by the Scottish Government regarding the scope of the EIA:

- Scottish Environment Protection Agency
- The Highland Council
- Telecommunications asset owners
- MoD Defence Infrastructure Organisation (DIO)
- NATS Safeguarding
- Highlands and Islands Airports Limited

Consultee Questions

- Are the scopes of the proposed assessments appropriate?
- Are Consultees aware of any key sensitive receptors that should be considered?
- Are Consultees aware of any additional relevant consultees?
- Do consultees have any initial comments to make in relation to potential effects arising from solar glint and glare?
- Do consultees agree that air quality can be scoped out of the EIA?
- Do consultees agree with the proposed design mitigation approach to avoid potential shadow flicker effects?
- Do consultees agree with the proposed assessment methodology for calculating carbon balance?
- Do consultees agree that population and human health can be scoped out of the EIA?
- Do the consultees agree that vulnerability of the development to risks of major accidents and/or disasters (including climate change) can be scoped out of the EIA?
- Please confirm additional requirements, which have not been covered in this information sheet, that you believe should be included in this element of the EIA.

Relevant Policy and Guidance

- The Highland Council, (2012). Interim Supplementary Guidance: Onshore Wind Energy.
- Scottish Government, (2014). Onshore wind turbines: planning advice.
- IEMA, (2017). Assessing Greenhouse Gas Emissions and Evaluating their Significance in EIA (2017).
- Met Office, (2019) UKCP18 Science Overview Report (2019).
- Scottish Government, (2013). The Scottish Government's web-based guide relating to onshore wind turbines.

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