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¹ Figure 5.5 also has an "f" page which contains confidential information relating to protected species. This will be provided separately to the Scottish Ministers, The Highland Council and NatureScot.



5. ECOLOGY

5.1 Executive Summary

- 5.1.1 Scottish and Southern Electricity Networks Transmission (SSEN Transmission) is proposing a new 132 kV overhead line (OHL) between the consented Achany Wind Farm Extension on-site substation and the existing Shin substation (the Proposed Development). The Proposed Development is anticipated to comprise approximately 16 km of OHL supported by trident H-wood pole, with a short section of underground cable (UGC) of approximately 1.2 km close to the consented Achany Wind Farm Extension on-site substation.
- 5.1.2 An appraisal has been undertaken of the potential effects of the Proposed Development on terrestrial ecology (non-ornithological) features. A separate Chapter has been prepared to appraise the potential effects of the Proposed Development on ornithology features (**Chapter 6: Ornithology**).
- 5.1.3 Desk studies and field surveys were undertaken for identified ecological receptors including sites designated for nature conservation interests (both statutory and non-statutory), habitats and vegetation, and protected species according to best practice methodologies. An appraisal of the potential effects of the Proposed Development on ecological receptors, along with suggested mitigation measures to avoid or reduce any potential effects is presented in this Chapter.
- 5.1.4 The Proposed Development does not pass through any statutory sites designated for nature conservation. Caithness and Sutherland Peatlands Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar site and Grudie Peatlands Site of Special Scientific Interest (SSSI) is located within 160 m of the Proposed Development. The River Oykel SAC is located within 380 m of the Proposed Development.
- 5.1.5 Signs of protected species recorded during surveys included those of otter, water vole, red squirrel, pine marten and structures with potential to support roosting bats.
- 5.1.6 Habitats identified during the vegetation surveys include areas of blanket bog, wet heath, dry heath, acid flush, bracken, acid grassland and woodland plantations. Given the nature of the Proposed Development, permanent habitat loss would be restricted to the extent of the pole footprints, cable sealing end (CSE) structure, permanent access tracks and woodland felling to construct and operate the Proposed Development. It is anticipated that pole locations and access tracks would be micro-sited within the Limits of Deviation (LoD), informed by habitat and peat probing surveys, in order to avoid sensitive habitats and deeper areas of peat as far as practicable. Temporary disturbance of habitats during the construction phase would be minimised by adherence to the site-specific Construction Environmental Management Plan (CEMP), which would include detailed methods of peat and soil management and reinstatement. Appropriate mitigation measures, such as track matting and bog boards would help to further minimise the potential for effects on sensitive habitats.
- 5.1.7 By adoption of the Applicant's detailed General Environmental Management Plans (GEMPs) (Appendix 3.2: SSEN Transmission General Environmental Management Plans) and Species Protection Plans (SPPs) (Appendix 3.3: SSEN Transmission Species Protection Plans) and the undertaking of pre-construction surveys for protected species, any potential effects on protected species and that habitats that support them as a result of the Proposed Development could be reduced or eliminated.
- 5.1.8 A Biodiversity Net Gain (BNG) Assessment has been undertaken to assess the loss of biodiversity as a result of the Proposed Development. To compensate for the loss of peatland habitat, an area of degraded peatland is proposed to be restored, with details provided in an outline Habitat Management Plan (oHMP).



5.2 Introduction

- 5.2.1 This Chapter considers the potential effects of the Proposed Development on non-avian ecology, including designated sites, terrestrial habitats and protected species. It outlines the methodologies used to appraise potential effects on internationally and nationally protected habitats, flora and fauna within the footprint of the Proposed Development and the surrounding area.
- 5.2.2 The ecological appraisal has been undertaken by Orrin Ecology using guidance from the Chartered Institute of Ecology and Environmental Management² and NatureScot³. All staff contributing to this Chapter have professional experience in ecological survey and ecological impact assessment. Further details of the EA Team are included in Appendix 1.3: EA Team.
- 5.2.3 This Chapter is supported by a series of figures and two appendices.
- 5.2.4 Appraisals of the effects of the Proposed Development on ornithological features and forestry are addressed separately in Chapter 6: Ornithology and Chapter 9: Forestry, respectively. An appraisal for the underground cable (UGC) section of the Proposed Development is considered separately in Appendix 1.1: Permitted Development Works Appraisal as part of the Applicant's permitted development rights⁴.
- 5.2.5 From the Achany Wind Farm Extension on-site substation at approximately 280 m above ordnance datum (AOD) the Proposed Development would comprise a section of 1.2 km of new 132 kV UGC, travelling south-west to the proposed cable sealing end (CSE) structure. From the CSE structure, the Proposed Development would continue as an OHL, travelling in a south-easterly direction, passing through Glen Rossal and to the south of Achany and Rosehall operational Wind Farms. The OHL would then continue in a south-easterly direction, and after it crosses the A839, pass to the south of Braemore wood and then continue south-east through Shin forest to connect into Shin substation at approximately 10 m AOD from the north-west.

5.3 Scope of Appraisal

- 5.3.1 This Chapter considers the potential effects of the Proposed Development on the following ecological features identified during the review of desk-based information and field surveys:
 - Designated nature conservation sites effects include direct (i.e. derived from land-take or disturbance to habitats or protected species) and indirect (i.e. habitat fragmentation and modifications, including through changes caused by impacts to supporting systems such as groundwater or overland flow);
 - Terrestrial habitats effects include direct (i.e. derived from land-take) and indirect (i.e. habitat fragmentation and modifications, including through changes caused by impacts to supporting systems such as groundwater or overland flow); and
 - Protected species and other notable species effects considered include direct (i.e. mortality, loss of key habitat, displacement from key habitat, barrier effects / fragmentation of key habitat preventing movement to / from key habitats; and general disturbance) and indirect (i.e. loss / changes of / to food resources; populations fragmentation; degradation of key habitat).
- 5.3.2 The appraisal is based on the description of the Proposed Development provided in **Chapter 3: The Proposed Development** and also takes into consideration the routeing process, which sought to avoid important ecological features where possible, as described in **Chapter 2: Routeing Process and Alternatives**. The scope of this appraisal has been informed by consultation and appropriate policy, legislation and guidance,

² CIEEM (2018) Guidelines for ecological impact assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine. Version 1.3, updated September 2024. Chartered Institute of Ecology and Environmental Management, Winchester

³ SNH (2018) Environmental Impact Assessment Handbook – Version 5: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment process in Scotland

⁴ Town and Country Planning (General Permitted Development) (Scotland) Order 1992



particularly with respect to National Planning Framework 4⁵ (NPF4) and other legislation, policy and guidance relevant to ecology.

- 5.3.3 This appraisal assumes that embedded mitigation (design features and construction good practice) will be successfully delivered; this includes successful pollution prevention. Direct and indirect effects that will require additional mitigation measures in order that they be avoided / reduced have been addressed. Specifically, this appraisal covers the following potential effects during the construction phase:
 - Loss and degradation of priority habitats and irreplaceable habitats; and
 - Degradation of supporting habitat, injury / mortality, and / or disturbance / displacement of protected species.
- 5.3.4 Operational effects on habitats and protected species have been scoped out. Any future maintenance activities are assumed to be confined within the wayleave, with access via the existing tracks and permanent tracks to be created along the wayleave. There will be no artificial lighting on the proposed new poles for the OHL.

5.4 Consultation

5.4.1 Consultation was undertaken with relevant stakeholders during the route selection and alignment selection stages of the project. The responses relevant to ecology and nature conservation received to date from the consultation process are provided in **Table 5.1: Consultation Responses**.

Organisation and Date / Project stage	Summary of Consultation Response	Response to Consultee
NatureScotNatureScot noted that the route options lie close to Caithness and Sutherland Peatlands SAC, SPA and Ramsar site, protected for its range of upland habitats, species (including marsh saxifrage and otter) and breeding birds.This was noted.StageNatureScot highlighted that all three route options lie within connectivity distance for SAC otter. In addition, where the route options run close to the 		This was noted. These nature conservation sites of international importance have been considered during the appraisal of route options, at alignment stage and as part of this Chapter.
	In relation to the SAC and otter, NatureScot outlined that further advice on survey and assessment is available on the NatureScot standing advice page. Where otter activity is identified, connectivity with the SAC should be fully considered as part of any future application.	This was noted. Further protected species surveys have been undertaken in accordance with NatureScot guidance. Effects on otter are considered within this Chapter.
	NatureScot suggests references to existing environmental information for nearby wind farms will also be useful when considering survey requirements for a proposal in this area.	This was noted. Existing environmental information for nearby wind farms was consulted and used to inform an understanding of the baseline environment, where relevant.
	NatureScot point out that all route options will lie within the catchment of the River Oykel SAC, protected for its Atlantic salmon and freshwater	This was noted, and further consideration of potential effects to the qualifying features of the River Oykel SAC has

Table 5.1: Consultation Responses

⁵ Scottish Government (2023) Scotland's Fourth National Planning Framework. Available from: https://www.gov.scot/publications/national-planning-framework-4/



Scottish & Southern Electricity Networks

Organisation and Date / Project stage	Summary of Consultation Response	Response to Consultee
	pearl mussels. The potential for direct and indirect impacts to the SAC will therefore need to be considered further as part of any future planning application. Given the proximity of the route options and the SAC, pollution prevention and siltation measures will be very important to maintain good water quality and safeguard the SAC features. Any mitigation measures proposed should be fully detailed in any future application. NatureScot also recommend consulting SEPA in relation to impacts on the water environment.	been undertaken throughout the project design process. This has included consideration of appropriate pollution prevention and silt control measures, and other mitigation measures where required. SEPA have been consulted in relation to effects on the water environment, see Chapter 7: Geology , Hydrology and Hydrogeology .
	NatureScot pointed out that all 3 route options lie close to the Grudie Peatlands SSSI, with Route Option 2 crossing into the site for a short section. The SSSI is protected for its blanket bog and breeding peatland waders (dunlin, golden plover and greenshank). It also forms part of the larger Caithness and Sutherland Peatlands SAC / SPA / Ramsar site, and NatureScot's advice given for this site will also be relevant for the SSSI.	This was noted. Route Option 2 was not taken forward as the proposed route option. Further consideration of potential effects on the Grudie Peatlands SSSI has been undertaken as the project design has progressed.
	NatureScot outlined that the Kyle of Sutherland Marshes SSSI is protected for its wet woodland, flood-plain fen and flowering plants. Both Route Option 1 and Route Option 2 avoid this SSSI. However, Route 1a will cross the SSSI in 2 places.	This was noted. Route Option 1a was not taken forward as the proposed route option.
	NatureScot confirmed that as per the Consultation Document ⁶ , all three route options would pass through Class 2 and potentially some Class 1 areas of peatland. Class 1 and Class 2 areas are described as nationally important carbon-rich soils, deep peat and priority peatland habitat likely to be of high conservation value and restoration potential. These areas are afforded significant protection under Scottish Planning Policy ⁷ . All route options therefore could have the potential to support peatland of national importance and further information will be required. As outlined in the consultation report, it will need to be demonstrated that any significant effects on these areas can be substantially overcome by siting, design or other mitigation measures.	Further consideration of potential effects on peatland habitats has been undertaken as the project design has progressed. This has included a peat depth survey, the preparation of a Peat Management Plan and Peat Landslide Hazard Risk Assessment to support this application, see Chapter 7 .
	NatureScot outlined that the potential for impacts on protected species will need to be fully assessed as part of any future application. NatureScot agreed that reference to existing information for nearby wind farm will be helpful when considering the scope of survey work	Protected species surveys have been undertaken and appropriate mitigation set out in this Chapter, including reference to SSEN Transmission Species Protection Plans (see Appendix 3.3). On the basis of baseline survey results, there is

⁶ SSEN Transmission (October 2022) Achany Wind Farm Extension Grid Connection: Consultation Document (Route Options)

⁷ Scottish Planning Policy is now considered superseded by NPF4, but this was not the case in December 2022 at NatureScot's time of writing this comment.



Organisation and Date / Project stage	Summary of Consultation Response	Response to Consultee
	required. NatureScot referred SSEN Transmission to their standing advice for the relevant species for further information and advice. They also advised that any mitigation proposed for protected species should be outlined in appropriate Species Protection Plans (SPPs) and be included as part of any future planning application. Furthermore, NatureScot outlined that SSEN Transmission will also need to consider if any species licences will be required for these works and contact the NatureScot Licensing Team regarding any licence applications.	currently no requirement for any species licences.
The Highland Council (THC) July 2023 / Alignment Selection stage	THC outlined that regardless of the alignment ultimately chosen, the River Oykel is designated as a SAC and any information submitted with the forthcoming section 37 application to the Energy Consents Unit should detail how the potential impacts of the transmission route on this natural heritage resource, particularly in terms of soil and pollutant runoff, can be satisfactorily avoided or mitigated against.	This was noted. The River Oykel SAC lies approximately 380 m from the Proposed Development at the closest point. Appropriate site design and the application of best practice measures such as the use of the Applicant's SPPs and General Environmental Management Plans (GEMPs) during construction and maintenance works would effectively reduce or eliminate any potential effects. GEMPs are included in Appendix 3.2 and SPPs in Appendix 3.3 .
NatureScot July 2023 / Alignment Selection stage	NatureScot welcomed the opportunity to comment on the alignment proposals. In summary, their advice was largely unchanged from the route selection consultation stage; the alignments did not offer a significant or material difference to the protected areas, habitats, and species.	Previous comments from NatureScot are noted. The selection of a proposed alignment has been informed by detailed survey findings and have been continually reviewed as the project design progressed.
	NatureScot noted that the proposal lies close to the Caithness and Sutherland Peatlands SAC, protected for its range of upland habitats and for otter. Avoiding impacts to this site should be a key consideration in the design of a proposal in this area. Where impacts are identified, careful and thorough assessment will be required to demonstrate that a proposal can be built in this location without adverse effects on the qualifying interests of the site. The proposed alignment is out-with the water catchment for the SAC, but it is within connectivity distance for otter. Where otter activity is identified, this should be full considered as part of any upcoming application.	As above, the nature conservation sites of international importance have been considered during the appraisal of route and alignment options. Protected species surveys have been undertaken and where otter activity has been identified, this is considered within this Chapter.
	NatureScot noted that the proposal lies within the catchment of the River Oykel SAC, protected for its Atlantic salmon and freshwater pearl mussel. The potential for direct and indirect impacts to the SAC will therefore need to be considered further as part of any future planning application. Given the proximity of the alignments and the SAC,	As above, the nature conservation sites of international importance have been considered during the appraisal of route and alignment options and as part of this appraisal. Pollution prevention and silt control measures is considered within this Chapter and Chapter 7 . SEPA have



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Organisation and Date / Project stage	Summary of Consultation Response	Response to Consultee
	pollution prevention and siltation measures will be very important to maintain good water quality and safeguard the SAC features. Any mitigation measures proposed should be fully detailed in any future application. NatureScot also recommend consulting SEPA in relation to impacts on the water environment.	been consulted in relation to effects on the water environment, see Chapter 7 .
	NatureScot noted that the alignment options are close to Grudie Peatlands SSSI which is protected for its blanket bog and breeding peatland waders (dunlin, golden plover and greenshank). It also forms part of the larger Caithness and Sutherland Peatlands SAC / SPA / Ramsar site, and our advice given above for this site will also be relevant for the SSSI. NatureScot are pleased to see that previous route options that crossed into the SSSI have now been discounted.	This has been noted. This nationally protected site was taken into consideration during the appraisal of route and alignment options and is considered within this Chapter. Consideration of breeding peatland waders including dunlin, golden plover and greenshank is considered in Chapter 6 .
	NatureScot are pleased to see that previous route options that crossed into the Kyle of Sutherland Marshes SSSI, protected for its wet woodland, flood-plain fen and flowering plants, have now been discounted. All alignment options are located within the surface water catchment of the Kyle of Sutherland Marshes though, so pollution prevention and siltation measures will be important to maintain good water quality and safeguard the notified features of the SSSI.	This has been noted. This nationally protected site was taken into consideration during the appraisal of route and alignment options and is considered within this Chapter. Pollution prevention and silt control measures will be considered as part of this Chapter and Chapter 7 and appropriate mitigation measures proposed.
	NatureScot note that the alignment options will pass through Class 1 and Class 2 areas of peatland. Class 1 and Class 2 areas are described as nationally important carbon-rich soils, deep peat, and priority peatland habitat likely to be of high conservation value and restoration potential. These areas are afforded significant protection under Scottish Planning Policy ⁷ . As outlined in the consultation report ⁸ , it will need to be demonstrated that any significant effects on these areas can be substantially overcome by design and micrositing plus other mitigation measures. Nature Scot outlined that where peat is present, specific peat surveys should be carried out in line with Scottish Government Guidance.	Areas of Class 1 and 2 peat soils were identified during route and alignment appraisals, and surveys have informed the selection of a proposed alignment and design solution, seeking to minimise effects on priority peatland habitat where possible. As the project progresses, of key importance will be the minimisation of effects on peat and peatland. Peatland surveys have been undertaken in line with Scottish Government Guidance to ensure the alignment will avoid peat as far as possible. A Peat Management Plan and a Peat Landslide Hazard Risk is included within Chapter 7 .
	NatureScot note that the potential for impacts to protected species will also need to be fully assessed as part of any future application and agree that referencing any existing information for nearby wind farm will be helpful when considering the scope of survey work required. However, additional survey work will be required.	Protected species surveys and appraisal of effects on each species have been undertaken in accordance with NatureScot's guidance and are detailed within this Chapter. Existing data from nearby wind farm applications formed part of the desk study and was used to inform the scope of surveys.

⁸ SSEN Transmission (June 2023) Achany Extension Grid Connection Alignment Options – Consultation Document



Organisation and Date / Project stage	Summary of Consultation Response	Response to Consultee
	NatureScot referred to their previous correspondence at the route selection consultation stage and their advice presented. NatureScot also advised that any mitigation proposed for protected species should be outlined in appropriate Species Protection Plans (SPPs) and be included as part of any future planning application. It should be noted that any species licences that may be required for these works should be reported to the NatureScot Licensing team.	Previous comments from NatureScot are noted. Appropriate SPPs are included in Appendix 3.3 . On the basis of baseline survey results, there is currently no requirement for any species licences.
Foresty and Land Scotland (FLS) July 2023 / Alignment Selection stage	In order to make the proposed OHL across the National Forests and Land (NFL) acceptable to FLS and remove its objections, FLS suggested that the connection needs to agree a package of remedial works to mitigate the impact on the NFL and produce a biodiversity and environmental net gain for both the project and the surrounding forest.	The Applicant is committed to compensatory planting for any woodland loss in line with the Scottish Government's Policy on Control of Woodland Removal and Biodiversity Net Gain (BNG) measures to help mitigate effects across the entire length of the Proposed Development. SSEN Transmission welcomed FLS' input into identifying potential initiatives which could take place within its land holding. SSEN Transmission has quantified biodiversity and woodland units lost as part of the project and is seeking further engagement with FLS. All of SSEN Transmission's BNG works need to be achieved through habitat creation to a value of 10% gain over the baseline biodiversity lost and, therefore, there is potential to undertake BNG enhancement working with FLS where suitable initiatives are identified.
Public July 2023 / Alignment Selection stage	Consultees suggested that active osprey nests and badger sets near the project should be brought to the attention of the project team. One consultee suggested that for raptors and other animals the infrastructure is compromising the long-term goals of attracting recolonization or introduction of species.	Appropriate protected species surveys have been undertaken as part of this EA and appraisals undertaken to ensure suitable mitigation is provided to avoid disturbance effects on protected species. NatureScot's protected species advice has been observed during survey and appraisal for this proposal to help inform protected species survey methods (including timing of surveys, survey area and shelf- life), Species Protection Plans, mitigation and licence application requirements. Characterisation of breeding birds within proximity to the Proposed Development is included in Chapter 6 .



5.5 Methodology

5.5.1 This section describes the methodology used to gather baseline information and identify and appraise effects resulting from the Proposed Development on features of ecology and nature conservation interest. Details of the methodologies used to gather and evaluate baseline information in relation to designated sites, habitats and protected species are provided in **Appendix 5.1: Habitat and Protected Species Survey Report**.

Study Area and Survey Area

- 5.5.2 A range of surveys (as described in the *Field Survey* section below) were employed to record baseline ecological conditions within the Limit of Deviation (LoD), as described in **Chapter 3**, and appropriate buffers. Terms referred to are as follows:
 - 'Survey Area' is defined as the area covered by each survey type at the time of survey; and
 - 'Study Area' is defined as the area of consideration of effects on designated sites at the time of appraisal.
- 5.5.3 The Study Area covers 10 km from the Proposed Development for internationally designated sites (i.e. SACs) and 5 km for nationally designated sites (i.e. SSSIs, Local Nature Conservation Sites and woodland included on the Ancient Woodland Inventory (AWI)).
- 5.5.4 The spatial extent of each Survey Area varies depending on factors including hydrological connectivity, potential pathways for effects, the territorial ranges of species and the disturbance zones for each species. Surveys undertaken in June and July 2023 to inform the baseline ecological conditions were completed across the following Survey Areas:
 - 'Habitat Survey Area' (HSA) is a 500 m corridor, defined as 250 m from infrastructure associated with the Proposed Development, including proposed pole locations, CSE structure and access tracks (both temporary and permanent);
 - 'Protected Species Survey Area' (PSA) is a 500 m corridor, defined as 250 m from infrastructure associated with the Proposed Development, focusing on badger, red squirrel, water vole, otter and pine marten; and
 - 'Bat Roost Survey Area' (BSA) is a 200 m corridor, defined as 100 m from infrastructure associated with the Proposed Development, focusing on structures that could support bat roosts.

Desk Study

- 5.5.5 Baseline data on the nature conservation interest of the Survey Area and its surroundings, including information on sites designated for nature conservation and protected species records, were sought from the following sources:
 - Joint Nature Conservation Committee (JNCC) website⁹;
 - NatureScot Site Link website¹⁰;
 - The National Biodiversity Network (NBN) Atlas Scotland (NBN, 2023) website¹¹;
 - Ancient Woodland Inventory (AWI) (Scotland)¹²;
 - Scotland's Environment Map for the Carbon and Peatland 2016 Map¹³;
 - Scottish Biodiversity List (SBL)¹⁴;

⁹ https://jncc.gov.uk Accessed June 2024.

¹⁰ https://sitelink.nature.scot/home Accessed June 2024.

¹¹ https://nbn.org.uk Accessed June 2024.

 $^{^{12} \ {\}rm https://opendata.nature.scot/maps/ancient-woodland-inventory} \ {\rm Accessed} \ {\rm June} \ {\rm 2024}$

¹³ https://map.environment.gov.scot/soil_maps/ Accessed June 2024

 $^{^{14} \ \}text{https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy-and-cop-15/scottish-bidiversity-list Accessed \ \text{June 2024}$



- Highland Nature Biodiversity Action Plan 2021 2026¹⁵;
- The Environmental Impact Assessment (EIA) and associated documents for Achany Wind Farm Extension (SSE, 2023), Glencassley Wind Farm EIA (SSE, 2012), Achany Wind Farm (SSE, 2005) and Rosehall Wind Farm (E.ON, 2005);
- Relevant scientific literature on protected species, habitats distribution and conservation status etc.
- Large-scale 1:10,000 Ordnance Survey (OS) maps in conjunction with colour 1:25,000 OS map and highresolution aerial imagery (to determine the presence of ponds and other features of nature conservation interest).

Field Survey

- 5.5.6 A high-level habitat walkover was undertaken in August 2022 for the routeing selection; see **Chapter 2** for further information on selection of the Proposed Development's alignment. Information gathered during this walkover was used to inform surveys for the final alignment selection stage of the Proposed Development.
- 5.5.7 The following field surveys were undertaken throughout June and July 2023 to further establish the baseline ecological conditions at the Proposed Development (plus appropriate buffers where relevant) to inform the appraisal, and were undertaken in line with standard methodologies and best practice guidance:
 - UKHab survey to categorise the types of habitats present. Habitats were mapped using the UKHab methodology¹⁶, with habitats present within the Habitat Survey Area (HSA) defined as 250 m from infrastructure associated with the Proposed Development. Habitat types were recorded and mapped, with each feature assigned a Primary Habitat based on the UKHab Key and Secondary Code(s) as appropriate. Vegetation is described in a series of target notes (TNs), with plant nomenclature following Stace (2010)¹⁷;
 - National Vegetation Classification (NVC) Survey of Priority and sensitive habitats, undertaken in conjunction with the UKHab survey;
 - Identification of potential groundwater-dependent terrestrial ecosystems (GWDTEs) based on their NVC habitat community and hydrogeological setting, with reference to the associated groundwater dependency scores published in the current SEPA guidance¹⁸;
 - Protected species surveys focusing on badger, red squirrel, water vole, otter and pine marten within 250 m of infrastructure associated with the Proposed Development, and structures that could support bat roosts within 100 m of infrastructure associated with the Proposed Development; and
 - Incidental records of other protected species such as signs or features of particular importance e.g. potential signs of wildcat, potential hibernacula for reptile, notable species, or invasive non-native species (INNS), were also recorded during field surveys.
- 5.5.8 The full details of survey areas, methods, species specific legislation and results are provided within **Appendix 5.1**.

Appraisal of Effects

5.5.9 The appraisal has been undertaken according to the current guidance detailed by the CIEEM¹⁹. The appraisal of the significance of predicted effects on ecological receptors is based on both the 'sensitivity' of a receptor and the nature and magnitude of the effect that the Proposed Development will have on it. Effects may be

¹⁵ https://www.highlandenvironmentalforum.info/biodiversity/action-plan/ Accessed June 2024

¹⁶ UKHab Ltd (2023) UK Habitat Classification Version 2.0. Available from: https://www.ukhab.org

¹⁷ Stace, C. (2010) New Flora of the British Isles. 3rd Edition. Cambridge University Press. Cambridge

¹⁸ SEPA (2017) Guidance Note 31: Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Terrestrial Ecosystems. Version 3.

¹⁹ CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine Version 1.3, updated September 2024. Chartered Institute of Ecology and Environmental Management, Winchester.



direct (e.g. the loss of species or habitats), or indirect (e.g. effects due to noise, dust or disturbance) on receptors located within or outside the Survey Area.

Sensitivity / Importance of Ecological Receptors

- 5.5.10 A key consideration in appraising the effects of any development on flora and fauna is to define the areas of habitat and the species that need to be considered. This requires the identification of a potential zone of influence, which is defined as those areas and resources that may be affected by biophysical changes caused by project activities, however remote. The approach that has been undertaken for this appraisal is to identify 'sensitive ecological receptors' individually (species and habitats that are both valued in some way and could be affected by the Proposed Development) and separately, to consider legally protected species.
- 5.5.11 The sensitivity of species' populations and habitats is appraised with reference to:
 - their importance in terms of 'biodiversity conservation' value (which relates to the need to conserve representative areas of different habitats and the genetic diversity of species populations);
 - any social benefits that species and habitats deliver (e.g. relating to enjoyment of flora and fauna by the public); and
 - any economic benefits that they provide.
- 5.5.12 Both species' populations and habitats have been valued using the following scale: Very High, High, Medium, Low, Very Low and Negligible.
- 5.5.13 As per CIEEM guidance²⁰, it is not necessary to carry out detailed appraisal on features that are sufficiently widespread, unthreatened, and resilient to the effects of the Proposed Development. Those ecological receptors that are potentially affected by the Proposed Development and deemed to be of at least local importance are taken forward for appraisal.
- 5.5.14 Ecological features have been valued using the scale set out in **Table 5.2: Scale of Value** below, with examples provided of criteria used when defining the level of value.

Sensitivity of Receptor	Examples (Guidance to Evaluation)	
Very High (International)	An internationally important site e.g. Special Protection Area (SPA), Special Area of Conservation (SAC), Ramsar (or a site proposed for, or considered worthy of such a designation);	
	A regularly occurring substantial population of an internationally important species (listed on Annex IV of the Habitats Directive).	
High (National)	A nationally designated site e.g. Site of Special Scientific Interest (SSSI), or a site proposed for, or considered worthy of, such designation;	
(National)	A viable area of a habitat type listed in Annex 1 of the Habitats Directive or smaller areas of such habitat which are essential to maintain the viability of a larger whole;	
	A regularly occurring substantial population of a nationally important species, e.g. listed on Schedules 5 & 8 of the 1981 Wildlife and Countryside Act;	
	A feature identified as a priority species / habitat in the UK Biodiversity Action Plan (BAP).	
Medium	Regional areas of internationally or nationally important habitats which are degraded	
(Regional)	but are considered readily restored;	

Table 5.2: Scale of Value

²⁰ As above



Sensitivity of Receptor	Examples (Guidance to Evaluation)
	A regularly occurring, locally significant population of a species listed as being nationally scarce;
	A regional-scale important population or area of a species or habitat listed on the SBL or local BAP e.g. areas of woodland included on the AWI of semi-natural origin.
Low	Viable areas of priority habitat identified in the Local BAP or smaller areas of such habitat which are essential to maintain the viability of a larger habitat as a whole;
	Non-statutory designated areas e.g. Local Nature Reserve (LNR), Local Nature Conservation Site (LNCS), Environmentally Sensitive Area (ESA), Scottish Wildlife Trust (SWT) reserve or areas of woodland listed on the Ancient Woodland Inventory (AWI) as being of plantation origin;
	A regularly occurring, substantial population of a nationally scarce species, including species listed on the UK and Local BAPs e.g. common frog (a UK BAP species);
	Areas of nationally important habitats which are degraded and have little or no potential for restoration;
	Areas of GWDTE habitats such as flushes (such as M6 and M23), which are uncommon within the local area.
	A good example of a common or widespread habitat in the local area, e.g. those listed as broad habitats on the Local BAP;
	Species of national or local importance, but which are only present very infrequently or in very low numbers within the subject area.
Very Low	Areas of habitat which have value to the local environment, or populations of regularly occurring common species of local conservation interest;
	Areas of GWDTE habitats which are common within the local area (such as MG10 rush pasture);
	Local areas of heavily modified or managed vegetation of low species diversity or low value as habitat to species of nature conservation interest;
	Common and widespread species.
Negligible	Areas of limited ecological value, which are not representative of semi-natural habitat and do not support wildlife of conservation interest.

Magnitude of Effect

- 5.5.15 Potential effects of the Proposed Development are appraised with consideration of changes to the extent and integrity of an ecological feature. Effects can vary according to size, extent, duration, timing and frequency. These factors are brought together to appraise the magnitude of the effect on the particular valued ecological receptor, and on the 'integrity' of the habitats that support them. A definition of integrity can be found within Scottish Executive circular 6/1995 updated by the Scottish Executive (2000)²¹ which states "The integrity of a site is the coherence of its ecological structure and function, across its whole area, which enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified". This definition is with reference to statutory designated sites but is applied to wider habitats and species for the purposes of this appraisal.
- 5.5.16 Wherever possible, the magnitude of the effect is quantified through professional judgement, legislation, best practice guidance and consideration of the predicted degree of change to baseline conditions to assign the effects on the receptors to one of four classes of magnitude, as defined in **Table 5.3: Magnitude of Effect**.

²¹ Scottish Executive (2000) Nature conservation: implementation in Scotland of EC Directives on the conservation of natural habitats and of wild flora and fauna and the conservation of wild birds ('The Habitats and Birds Directives'). Updating Scottish Office Circular 6/1995.



Table 5.3: Magnitude of Effect

Magnitude	Definition
High	A permanent or long-term effect on the integrity of a site or conservation status of a habitat, species assemblage / community, population or group. If adverse, this is likely to threaten its sustainability; if beneficial, this is likely to enhance its conservation status
Medium	A permanent or long-term effect on the integrity of a site or conservation status of a habitat, species assemblage / community, population or group. If adverse, this is unlikely to threaten its sustainability; if beneficial; this is likely to be sustainable but is unlikely to enhance its conservation status.
Low	A short-term but reversible effect on the integrity of a site or conservation status of a habitat, species assemblage / community, population or group that is within the range of variation normally experienced between years.
Negligible	A short-term but reversible effect on the integrity of a site or conservation status of a habitat, species assemblage / community population or group that is within the normal range of annual variation.

Significance of Effect

- 5.5.17 Although an EIA is not required for the Proposed Development (see Chapter 1) the process for appraisal within this chapter generally aligns with the significance criteria of an EIA Report, and in line with current NatureScot guidance²². As such, the top three geographical tiers (international, national and regional) are the most important.
- 5.5.18 Having followed the process of attributing a value to an ecological receptor, ascertaining its sensitivity and characterising potential effects, the significance of the effect is then determined. The CIEEM guidelines use only two categories to classify effects: "significant" or "not significant". The significance of an effect is determined by considering the value of the receptor and the magnitude of the effect and applying professional judgement as to whether the integrity of the receptor will be affected.
- 5.5.19 Effects are more likely to be significant where they affect receptors of higher conservation value or where the magnitude of the effect is high. Effects not considered to be significant would be those where the integrity of the receptor is not threatened, effects on receptors of lower conservation value, or where the magnitude of the effect is low.

Limitations to the Appraisal

- 5.5.20 The location of access tracks, both permanent and temporary, were defined following completion of detailed field surveys resulting in two sections of access track (both temporary), falling partially out-with the habitat and protected species survey areas:
 - One section of temporary access track from proposed pole 30 to the consented Achany Wind Farm Extension access track, where approximately 545 m of the track falls out-with the surveyed area (see Figure 3.1a-e: The Proposed Development for pole numbers). For this section, NVC survey data from the Achany Wind Farm Extension EIA was used to fill in habitat information gaps; and
 - The second section of temporary access track that falls out-with the surveyed area connects from the B864 north of Shin substation, to proposed poles 205 to 207. Approximately 260 m of this access track falls out-with the area surveyed. For this section, survey data that was collected during the high-level walkover of the various route options in August 2022 was used to fill in habitat information gaps.

²² SNH (2018) Assessing significance of impacts from onshore wind farms outwith designated areas (Version 2), SNH.

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- 5.5.21 There is potential for protected species (e.g. pine marten, red squirrel) to be present within these areas which were not surveyed. These survey gaps would be addressed through pre-construction surveys for protected species as detailed in Section 5.7 below. The Applicant's Species Protection Plans (SPPs), included in Appendix 3.3, would be applied where any signs of protected species are found during the pre-construction surveys.
- 5.5.22 The habitat and faunal surveys provide a snapshot of ecological conditions at the time of survey and do not record plants or animals that may be present in the Survey Area at different times of the year. The absence of a particular species cannot be confirmed by a lack of field signs and only concludes that an indication of its presence was not located during the survey effort.

Field Surveys Scoped Out

- 5.5.23 The following field surveys were scoped out of the appraisal:
 - Freshwater habitat surveys the Proposed Development would oversail (as an OHL) several watercourses. Construction would be undertaken in accordance with best practice measures and Guideline for Pollution Prevention (GPP), adhering to the Applicant's GEMPs (specifically Working in or Near Water and Watercourse Crossings) Appendix 3.2 (GEMPs) and Appendix 3.3 (SPPs). A buffer zone (10 m) around the watercourse network would be implemented. A desk study review of relevant information from surveys undertaken for the Glencassley and Achany Wind Farm Extension EIAs was undertaken and both EIAs concluded that the watercourses within the wind farm site and access track, which overlap with the Proposed Development, do not contain suitable habitat for freshwater pearl mussel populations or Atlantic salmon. Given this, specific fish habitat and freshwater pearl mussel surveys were not undertaken as part of this appraisal for the Proposed Development as significant effects to freshwater habitats are not anticipated. See Chapter 7 for further details on watercourse crossings and protection;
 - Bat activity surveys no significant effects to bat activity are expected due to the Survey Area being dominated by intensively managed pasture fields. The conifer shelter belts are dense and are not considered to provide important foraging or commuting opportunities. The Proposed Development is unlikely to have any significant effect on bat foraging or commuting activity;
 - Reptile and amphibian surveys species specific surveys and associated assessments for great crested newt (GCN) are not considered to be required due to the habitat within the Survey Area being largely unsuitable. Any incidental records of suitable reptile refugia were noted during protected species surveys; and
 - Surveys for beaver were scoped out of field surveys due to the Proposed Development being located outwith the known range or distribution of the species.

5.6 Baseline Conditions

5.6.1 The zone of sensitivity for ecological features varies according to the characteristics of the feature and the nature of the potential effect. In this appraisal, effects are appraised for the Proposed Development (defined as the Survey Area) and the Study Area buffer zones as displayed on Figure 5.1: Sites Designated for Nature Conservation and described below. Details of the spatial extent of each Survey Area are detailed within Appendix 5.1.

Internationally Designated Sites

5.6.2 Potential effects of the Proposed Development on internationally designated sites are considered for all sites that fall within 10 km of the Proposed Development.



5.6.3 Four SAC sites and one Ramsar site were identified within 10 km of the Proposed Development. Summaries of their citations are provided in **Table 5.5: Summary of Internationally Designated Sites** and their locations shown on **Figure 5.1: Sites Designated for Nature Conservation**.

Site Name	Distance to Proposed Development	Description
Caithness and Sutherland Peatlands SAC (Site code: 8242),	160 m	Designated for one of the best examples of blanket bog in the world, supporting many rare mosses and vascular plants.
Ramsar site (Site code 8412)		Qualifying habitats include: 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 and wet heathland with Cross-leaved heath (<i>Erica tetralix</i>). Qualifying species include: Marsh saxifrage (<i>Saxifraga</i> <i>hirculus</i>) and Otter (<i>Lutra lutra</i>).
		The site also supports a broad range of important bird species, discussed in more detail in Chapter 6.
The River Oykel SAC (Site code 8363)	382 m	This SAC is a long, meandering river that flows into the Kyle of Sutherland, designated for the internationally important populations of Freshwater pearl mussel (<i>Margaritifera margaritifera</i>) and Atlantic salmon (<i>Salmo salar</i>).
Dornoch Firth and Morrich More SAC (Site code 8242)	7 km	This SAC is the most northerly large, complex estuary in the UK. The estuary is fed by the Kyle of Sutherland and contains an extensive area of mudflats and sandflats that support several specialist saltmarsh and salt meadow plant species and is also an important site for otter and common seal.
River Evelix SAC (Site code 8358)	9.4 km	Draining southeast to the Dornoch Firth, the River Evelix is the only remaining small east coast river in Scotland that supports a surviving functional freshwater pearl mussel population.

Table 5.5: Summar	v of Internationall	v Designated Sites
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Nationally Designated Sites

- 5.6.4 Potential effects on nationally designated sites are considered for all sites that fall within 5 km of the Proposed Development.
- 5.6.5 Two SSSIs were identified within 5 km of the Proposed Development. Summaries of their citations are provided in **Table 5.6: Summary of Nationally Designated Sites** and their locations shown on **Figure 5.1**.



Table 5.6: Summary of Nationally Designated Sites

Site Name	Distance to Proposed Development	Description
Grudie Peatlands SSSI (Site code 750)	160m	Forming part of the Caithness and Sutherland Peatlands SAC, SPA and Ramsar site, Grudie Peatlands SSSI is designated for its important blanket bog habitat which lies in the watershed between Glen Cassley and Loch Shin. Containing a number of different blanket bog types, forming an extensive peatland habitat with bog pools and small lochans. The site is noted for the relative abundance of the nationally scarce dwarf birch (<i>Betula nana</i>) and a range of less common Sphagnum moss species such as <i>Sphagnum pulchrum</i> , <i>S. fuscum</i> , <i>S.</i> <i>imbricatum</i> and <i>S. magellanicum</i> . The site also supports a broad range of important bird species, discussed in more detail in Chapter 6 .
Kyle of Sutherland Marshes SSSI (Site code 885)	490m	Located along the floodplains of the River Oykel between Rosehall and Bonar Bridge, notified for nationally important floodplain plant communities, wet woodland and rare plants. The floodplain terraces are regularly inundated and support the best examples of floodplain fen habitat in Sutherland. This is a two-part site, the western section covers the area of the River Oykel between Altass and Linsidemore and the eastern section of the site covers the confluence with the River Shin.

Local Sites of Nature Conservation Interest

- 5.6.6 There are no Local Nature Reserves, wildlife sites or other local designated sites within 5 km of the Proposed Development.
- 5.6.7 The carbon and peatland map 2016 indicates that Class 1 and Class 2 peatland habitats are present within the Survey Area, particularly across the higher altitude plateaux areas in the northwest, as shown in Figure 7.4: Peatland Classification. Class 1 Peatland Habitat is defined as 'nationally important carbon rich soils, deep peat and priority peatland habitat areas likely to be of high conservation'. Infrastructure for the Proposed Development has sought to avoid areas of Class 1 Peatland were possible. Poles 122 124, heading southeast of the A839 are located within an area of Class 1 peatland and poles 125 129 also run along the edge of the same area (see Figure 3.1a-e for pole numbers). Class 2 Peatland Habitat is defined as 'Nationally important carbon-rich soils, deep peat and priority peatland habitat areas of potentially high conservation value and restoration potential'. The initial 3.9 km of OHL, from the CSE structure to pole 51; the temporary access track between pole 30 and the consented Achany Wind Farm Extension track; and a 343 m section of OHL northwest of Linsidemore (poles 142 146) are located within areas recognised as Class 2 peatland. All other infrastructure avoids Class 1 and 2 peatland habitats.
- 5.6.8 Ancient woodland sites included on the AWI within 5 km of the Proposed Development are shown on Figure 5.1. Areas of ancient woodland sites are afforded protection through NPF4 Policy 6. Ancient woodland types present include Category 1a and 2a of semi-natural origin; Category 1b and 2b long-established of plantation origin (LEPO) and Category 3 other woodlands on Roy woodland sites. Extensive areas of ancient woodland are present along Glen Cassley and within Shin Forest, along with smaller areas around Linsidemore. The felling requirements for the Proposed Development include felling for the Operational Corridor (OC) to create a wayleave 72 m wide (i.e. 36 m either side of the OHL), further reduced to a 60 m OC when felling within areas



of broadleaved trees. No Category 1a, 2a, 1b AWI falls within the OC. An area of 0.59 Ha of Category 3, Roy woodland, would require felling between poles 204 and 206 for the OC. This is an area of mature non-native conifer (Sitka spruce) plantation. For sections of new track built, a 25 m wide corridor is required (i.e. 12.5 m either side of track centreline). A 346 m section of the permanent access track north of Linsidemore would be located within an area of 2b LEPO AWI which has previously been clear-felled and is now open ground habitat (see Target Note 57, **Appendix 5.1**).

- 5.6.9 For new permanent tracks a 25 m OC has been assumed as required for the purposes of this appraisal (12.5 m either side of the track centreline). Within this Chapter, the proposed permanent track OC is only considered where present within areas of tree cover and outside of the OHL OC. Within this Chapter the proposed temporary track felling requirements are only considered where they are present within areas of tree cover and not already within the OHL OC or proposed management felling areas. Where the proposed temporary tracks are within the OHL OC, the area of woodland removal has already been accounted for within the OHL OC and has not been double counted.
- 5.6.10 Whilst not designated for nature conservation, three wind farm habitat management areas are located within proximity to the Proposed Development and are (or will be, subject to finalisation) actively managed to promote biodiversity. The Achany Wind Farm Habitat Management Plan (HMP)²³ area is located north of the Proposed Development and has target species of both black grouse (*Tetrao tetrix*) and water vole (*Arvicola amphibius*). The Survey Area overlaps slightly with the Rosehall Wind Farm Conservation Management Plan (CMP) area. Black grouse (*Tetrao tetrix*) and greenshank conservation and habitat improvement are target aims for the Rosehall CMP²⁴. The outline HMP area for the consented Achany Wind Farm Extension²⁵ is located to the northwest of the Survey Area and is still to be agreed with the local planning authority prior to development commencing.

Habitat Descriptions

5.6.11 The following sections discuss protected, or priority habitats identified within the Habitat Survey Area (HSA). Full details of the habitats mapped within the HSA are provided in **Appendix 5.1**. A total of 1031 Ha of habitats were mapped within the HSA. The results of the habitat surveys are displayed in **Figure 5.2**, with TN photographs in **Appendix 5.1** providing further detail.

Priority Habitats

- 5.6.12 An overview of these habitats is provided in **Table 5.7: Priority Habitats**, with their locations displayed on **Figure 5.3**. Priority habitats recorded across the HSA included:
 - f1a5 Blanket bog considered an irreplaceable habitat due to the significant time required for these communities to establish and form peat. Most of the blanket bog recorded within the HSA was considered to be modified through grazing and drainage and possibly other historic management practices such as burning resulting in some areas where the sward has become impoverished. Peat hagging was present in some areas of blanket bog within the HSA, in particular around the Allt an Ràsail watercourse in the northwest section of the HSA. Peat cutting has been undertaken in an area south of the A839. One area of 'Near Natural' M17 blanket mire was identified during surveys, located at the edge of the HSA approximately 180 m south of where the Proposed Development crosses the A839 (see TN 39);
 - f1a6 Degraded blanket bog habitat with an impoverished Sphagnum bryophyte layer and typically drier than non-degraded blanket bog habitat. This also included areas adjacent to Rosehall Wind Farm where remnant bog vegetation is recovering following clearfelling;

²³ Applied Ecology (2020) Achany Wind arm Habitat Management Plan. Year 10 Review.

²⁴ Natural Power (2010) Rosehall Wind Farm Conservation Management Plan 123_R_NPC_EON_1_d04

²⁵ SSE (2021) Achany Wind Farm Extension Environmental Impact Assessment Report



- Dry heaths; upland dominated by heather, this habitat is found on drier knolls throughout the HSA, in between areas of wet heath and bracken. Some evidence of burning was found in the north-west section of the HSA but was absent from dry heath habitats in the area north of Linsidemore. Herbivore impacts were evident, with deer browsing and trampling widely evident across the HSA and sheep browsing north of Linsidemore;
- Wet heathland with cross-leaved heath; upland the most frequently recorded habitat within the HSA out-with forestry plantations and often found in a fine scale mosaic with blanket bog and degraded blanket bog habitats. The NVC community M15c was commonly found on rocky areas where bare peat was visible through the open vegetation and was found most frequently in the north-west section of the HSA at higher altitudes. M15b typical sub-community was found more commonly on lower slopes and had a taller sward, often with extensive purple moor-grass and bog myrtle;
- f2c Upland flushes, fens and swamps found infrequently throughout the HSA and were typically small or linear flushes within heathland and mire habitats;
- w2b other Scots pine woodland found in one area within the HSA in Shin Forest, this stand is of plantation origin but has an understorey characteristic of native pine woods; and
- r2 rivers and lakes two small lochans are found within the HSA along with several watercourses that drain the HSA south to the River Cassley or the River Oykel.

UKHab	NVC Community	Conservation Status	Distribution within HAS	Coverage within HSA (%)
f1a5 blanket bog	M17; M19	SBL Habitat: Blanket bog; LBAP Habitat: Peatland and wetland Annex I Habitat: 7130 Blanket bogs	Found across open ground in the north-west section of the HSA and in smaller scattered patches south of the A839.	9
f1a6 degraded blanket bog	M25; M20	SBL Habitat: Blanket bog LBAP Habitat: Peatland and wetland	Found across open ground in the north-west section of the HSA and in smaller scattered patches south of the A839.	3
f2c upland flushes, fens and swamps	M6; M23; M10	SBL Habitat: Upland flushes, fens and swamps LBAP Habitat: Peatland and wetland	Infrequent throughout the HSA, small areas of flush habitat are found alongside watercourses / ditches and scattered throughout mire and heath habitats. Those dominated by rushes (M6 and M23) are found as discrete linear flushes alongside watercourses / ditches and forestry plantation blocks. Two M6 flushes are oversailed by the proposed OHL but no poles are proposed for these areas. Base rich stoney flushes (M10) are found	<1

Table 5.7: Priority Habitats



UKHab	NVC Community	Conservation Status	Distribution within HAS	Coverage within HSA (%)
			occasionally within the HSA and are small (less than 0.01 Ha). No poles are proposed for these areas.	
h1b5 dry heaths; upland	H10; H12	Annex I Habitat: 4030 European dry heaths SBL Habitat: Upland heathland LBAP Habitat: Upland and moorland	Found in drier areas of the HSA, throughout Rosehall Wind Farm and north of Linsidemore. This habitat occasionally is scattered with conifer trees and shrubs (native and non-native). The habitat shows evidence of herbivore effects from browsing and trampling.	2
h1b6 wet heathland with cross- leaved heath; upland	M15	Annex I Habitat: 4010 Northern Atlantic wet heaths with Erica tetralix SBL Habitat: Upland heathland LBAP Habitat: Upland and moorland	Widespread throughout the HSA and surrounding areas. Often found in fine-scale mosaic with blanket bog and degraded bog habitats, particularly in the north- west section of the HSA between the Achany Wind Farm Extension on-site substation and Rosehall Wind Farm. Habitats show evidence of herbivore effects from browsing and trampling.	27
w2a native pine woodlands	W18	SBL Habitat: Native pine woodlands LBAP Habitat: Woodland and forest	South-east of Loch Doire a' Chatha is a small stand of Scot's pine woodland, out-with felling areas for the OC. The stand is indicative of semi-natural Scot's pine woodland with several large, mature trees.	<1
w2b other Scots pine woodland	W18	SBL Habitat: Native pine woodlands LBAP Habitat: Woodland and forest	A single stand of Scot's pine woodland within Shin Forest, out-with felling areas for the OC. The stand is mature of plantation origin, noted as Native Pinewood on the NWSS, with an understorey characteristic of W18 <i>Pinus sylvestris</i> – <i>Hylocomium splendens</i> woodland.	<1
r2 Rivers and lakes	N/A	SBL Habitat: Rivers LBAP Habitat: Freshwater: rivers, burns and lochs	Several watercourses cross the HSA and drain to the Kyle of Sutherland. Watercourses include the Allt Bad an t-Segairt, Allt an Ràsail, Allt Mor and River	<1



UKHab	NVC Community	Conservation Status	Distribution within HAS	Coverage within HSA (%)
			Shin along with several smaller unnamed tributaries.	

<u>GWDTE</u>

5.6.13 The NVC survey identified the presence of 5 plant communities that are potential GWDTEs within the HSA.
 Full descriptions of habitat types are provided in Appendix 5.1, summarised in Table 5.8: Potential GWDTE below and displayed on Figure 5.4. Further information of the assessment of GWDTEs is provided in Chapter 7.

Table 5.8: Potential GWDTE

NVC Community	Potential Groundwater Dependency (SEPA, 2017)	Distribution within HAS
M23b Juncus effusus/acutiflorus- Galium palustre mire, Juncus effusus subcommunity	High	Infrequent within the HSA, comprising <0.1 % of surveyed habitats. Found within proximity to the Allt an Ràsail watercourse and Loch Doire a' Chatha. The closest proposed infrastructure is 57 m (proposed permanent access track)
M6c Carex echinata-Sphagnum fallax mire, Juncus effusus sub-community	High	Infrequent within the HSA, comprising <0.1 % of surveyed habitats. Found adjacent to conifer plantations southeast of Rosehall Wind Farm. The closest proposed infrastructure is 18 m (proposed pole location).
M10a Carex dioica-Pinguicula vulgaris mire, Carex viridula spp. Oedocarpa- Juncus bulbosus sub-community	High	Small, discrete areas scattered throughout heath and mire habitats. With individual areas less than 0.01 Ha, these areas are too small to map and have instead been target noted (see TNs 9, 15, 20, 66). No poles are proposed within this habitat.
M15b Trichophorum cespitosum-Erica tetralix wet heath, typical subcommunity; M15c Trichophorum cespitosum-Erica tetralix wet heath, Cladonia spp. subcommunity; M15d Trichophorum cespitosum-Erica tetralix wet heath, Vaccinium myrtillus subcommunity.	Low - Moderate	Widespread throughout the central and western sections of the HSA, comprising approximately 27 % of surveyed habitats.
M25a <i>Molinia caerulea-Potentilla erecta</i> mire, <i>Erica tetralix</i> sub-community	Low – Moderate	Found in open ground in the north-west extent of the HSA and also in smaller patches south of



NVC Community	Potential Groundwater Dependency (SEPA, 2017)	Distribution within HAS
		the A839, comprising 2 % of
		surveyed habitats. This habitat is
		dominated by purple moor-grass
		and is considered to be sustained
		by surface water rather than
		rainwater. As such, it is
		considered as a degraded
		peatland habitat, rather than a
		potential GWDTE.

Invasive Non-Native Plant Species (INNS)

5.6.14 A small number of individual *Rhododendron ponticum* plants were identified within the HSA, within open heath habitats in Glen Rossal and across Rosehall Wind Farm (see TN 18). No other invasive non-native species were recorded within the HSA.

Notable Plant Species

5.6.15 Several juniper shrubs (*Juniperus communis*) were found across the open heath habitats north of Linsidemore (see TNs 27, 47, 62). Juniper is a UK BAP and LBAP Priority Species due to its significant decline across the UK in recent decades.

Protected Species

5.6.16 Protected species surveys undertaken within the PSA (250 m buffer of the Proposed Development) for otter, water vole, badger, red squirrel and pine marten and within the BSA (100 m buffer of the Proposed Development) for structures with potential to support roosting bats, identified signs of otter, water vole, red squirrel, pine marten and bats within proximity to the Proposed Development. The locations of signs are displayed on **Figure 5.5. Figure 5.5f** contains confidential Protected Species Records and will not be published with the EA due to the potential risk to protected species. However, it will be issued to the Scottish Ministers, The Highland Council, and NatureScot.

<u>Otter</u>

5.6.17 Several watercourses within the PSA were suitable for supporting foraging otters and there is potential for otters to have resting sites (couches and holts) within proximity to these suitable watercourses. Otter spraint was found along the Allt an Ràsail watercourse and one of the unnamed tributaries of the River Cassley, northeast of Rosehall. One potential resting location (couch) was found along the Allt an Ràsail watercourse, 230 m from the nearest infrastructure component (proposed pole location). The location of the otter resting location is displayed in a separate confidential figure, **Figure 5.5f**²⁶.

Water Vole

5.6.18 Water vole habitat within the PSA was widespread, particularly in the northwest section and scattered throughout the central section. Water vole burrows were found near the Allt an Ràsail watercourse, 118 m from the nearest infrastructure component (proposed new permanent access track). A total of 14 burrows were identified, all considered to be part of the same colony, with signs of recent activity.

²⁶ Will not be published with the EA due to the potential risk to protected species. However, will be issued to the Scottish Ministers, The Highland Council, and NatureScot.

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Red Squirrel

5.6.19 Woodland suitable for supporting red squirrel is found through the central and eastern end of the PSA. Red squirrel foraging signs were found scattered throughout stands of conifer plantations in Shin Forest and north of Linsidemore, no dreys were found during the surveys.

Pine Marten

5.6.20 Woodland suitable for supporting pine marten is found through the central and eastern end of the PSA. A total of 14 scats were found within woodland areas and along forestry access tracks within the PSA. No dens were identified during the surveys, however suitable denning habitat exists within several woodlands throughout the PSA and the presence of scats would suggest that pine marten move throughout the woodland areas within the PSA.

<u>Bats</u>

- 5.6.21 A single structure was identified as having suitability for roosting bats within the BSA. A stone building, located 38 m from the nearest infrastructure component (a proposed temporary access track), provides potential roosting opportunities and a small number of bat droppings were identified on the exterior of the building. Due to the distance of the building with Potential Roost Features (PRFs) to the temporary access track (greater than 30 m disturbance distance for bat roosts), no internal checks or emergence / re-entry bat surveys were undertaken as it will be assumed that the building contains a bat roost. No PRFs were identified within the BSA.
- 5.6.22 No signs of, or features supporting, other protected species were identified during the baseline surveys.

5.7 Potential Effects

Embedded Mitigation

- 5.7.1 Prior to appraising potential effects upon important ecological receptors, the embedded mitigation relevant to this appraisal is considered. The embedded mitigation relevant to this appraisal included reliable tried and tested measures including:
 - Application of the Applicant's GEMPs, particularly Oil Storage and Refuelling, Soil Management, Working in Sensitive Habitats, Working in or Near Water and Watercourse Crossings, included in **Appendix 3.2**;
 - Adherence to the relevant general binding rules specified in the Water Environment (Controlled Activities) (Scotland) Regulations 2011, as amended (CAR) and any project-specific registrations or licences required prior to any construction works commencing; and
 - Employment of an Environmental Clerk of Works (ECoW) to provide advice, guidance and monitoring, during pre-construction and construction. The ECoW will monitor and advise on the implementation of both the planning conditions and the environmental commitments made within this Environmental Appraisal (EA), see Chapter 10: Schedule of Mitigation. The ECoW will also advise on the implementation of any required exclusion zones or restricted construction access for protected species. Routine inspections will be undertaken by the ECoW, particularly for works within the vicinity of watercourses. Toolbox talks will be provided by the ECoW to all site personnel where applicable on relevant site sensitivities, legislation, guidance and any mitigation measures in place on site for protected species or habitats and the role of the site personnel in implementing them.
- 5.7.2 Design and generic embedded mitigation of relevance to protected and priority species comprises the following:
 - The proposed Construction and Environmental Management Plan (CEMP)



- The Applicant's SPPs for otter, badger, water vole, bats, red squirrel and pine marten (see **Appendix 3.3**). These SPPs detail a mitigation hierarchy to avoid or minimise effects on protected or priority species. Avoidance and mitigation measures detailed typically include:
 - Pre-construction surveys and monitoring undertaken by an ECoW to include checks for protected species including Schedule 1 birds, protected mammal species and nests of all breeding birds immediately before and during construction works;
 - Sensitive working methods and avoidance of sensitive areas (such as resting sites) or supervision of works in close proximity to such sites;
 - Applications for the relevant Protected Species Development Licence from NatureScot if effects on certain protected species cannot be avoided. Works will then proceed under the conditions of the licence issued; and
 - Pre-construction environmental inductions, which will be given to all construction staff, and will include information on sensitive habitats, species and legislation.
- 5.7.3 It is expected that the following will be included within the site-specific CEMP, with the ECoW monitoring compliance with the site environmental documentation:
 - In accordance with SEPAs Guidance for Pollution Prevention GPP02 any fuel and chemical storage would be bunded and will not be stored within 50 m of watercourses or waterbodies;
 - Fuel deliveries and refuelling would be undertaken by trained staff in a designated area with an impermeable base. All fuel related activities would take place more than 50 m away from any watercourse;
 - Emergency spill response kits will be available and maintained during construction works;
 - Mechanical plant would be well maintained and inspected regularly for leaks;
 - Drip trays would be placed under stationary vehicles which could potentially leak fuel / oils;
 - Suitable access routes would be chosen which minimise the potential requirement for either new temporary
 access tracks or for tracking across open land which could contribute to the generation of suspended
 solids;
 - Any temporary construction / storage compounds required would be located remote from any sensitive surface water receptors and will be constructed to manage surface water run-off in accordance with best practice;
 - With the exception of watercourse crossing points, where bog boards or similar will be used as a temporary crossing point for watercourses less than 2 m wide, a minimum buffer of 10 m between construction works and watercourses will be implemented;
 - Silt fences, cut-off drains, silt traps and drainage will be used where appropriate to ensure that silt-laden run-off from construction activities does not enter watercourses, groundwater or aquatic waterways that have hydrological connectivity with either SAC;
 - Water for temporary site welfare facilities would be brought to site, and foul water would be collected in a tank and collected for offsite disposal at an appropriately licensed facility;
 - Felling works will adhere to good practice measures including Forestry Commission (Scottish Forestry) guidelines²⁷, management of forestry waste (SEPA)²⁸ and implementation of tree harvesting and extraction methods to ensure minimisation of soil disturbance and compaction to ensure protection of the water environment;
 - The ECoW will have authority to stop any works that are or have potential to impair the water environment;

²⁷ Forestry Commission (2017) The UK Forestry Standard.

²⁸ SEPA (2017) Management of Forestry Waste. Guidance WST-G-027.

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- A wet weather protocol would be developed detailing the procedures to be adopted by all site staff during periods of heavy rainfall (e.g. inspection and maintenance regimes of sediment and runoff control measures), in extreme cases works may be temporarily suspended until weather / ground conditions allow;
- Biosecurity measures to prevent the introduction or spread of invasive non-native species (INNS) will
 include cleaning of machinery, equipment and boots prior to entering the site to remove all traces of soil
 and plant debris and use of disinfectant.
- 5.7.4 Indicative pole locations are shown on **Figure 5.2**. A micro-siting allowance of 50 m either side (the LoD) of the centre line of the proposed OHL and 25 m either side of the centre line of proposed tracks has been sought to allow for any further micro-siting that may be required during the construction process to reflect localised land, engineering and environmental constraints. Micro-siting within the LoD will only be undertaken where poles can be moved into an area of similar or reduced sensitivity and where landownership boundaries allow.

Effects and Ecological Receptors Scoped Out

5.7.5 Based on the findings from the desk studies and baseline data collection, and with consideration of the embedded mitigation measures, certain ecological receptors can be scoped out of the appraisal where it can be considered that effects from the Proposed Development are unlikely. Ecological receptors that have been scoped out are set out in **Table 5.9: Ecological Receptors Scoped Out**, alongside reasoning.

Ecological Receptor Scoped Out	Reasoning		
Caithness and Sutherland	Caithness and Sutherland Peatlands SAC / Ramsar and component		
Peatlands SAC, Ramsar	Grudie Peatlands SSSI is situated 160 m from the Proposed		
Site	Development at the closest point. No land-take will occur within the		
	designation and no indirect habitat loss is anticipated given that all		
Grudie Peatlands SSSI	construction and operational works will take place downslope in the		
	Cassley catchment and not over the section of the catchment where the		
	SAC / Ramsar and SSSI site is located. The closest component of the		
	Proposed Development to the designation is a temporary access track,		
	which is likely to be constructed from trackway and therefore would not		
	require the installation of drainage. The permanent access track between		
	the CSE structure and the consented Achany Wind Farm Extension		
	substation access track would be 195 m from the designation at its		
	closest point, separated by the Allt an Ràsail watercourse. Any drainage		
	works associated with this permanent access track will not result in		
	drainage of the peatland associated with the designation.		
	Otter is a feature of the SAC and were found to be present within the		
	PSA. No holts were identified and one resting area was found out-with		
	the 30 m disturbance distance for otter. Evidence of otter presence		
	suggest otter occasionally move through the PSA and could use any		
	watercourses for commuting through the Proposed Development.		
	Surveys undertaken for the Proposed Development support the findings		
	of the Achany Extension Wind Farm EIA, which concluded that otters		
	move regularly between the River Cassley and Loch Shin, commuting		
	along watercourses.		
	The SPP for otters details the required monitoring and mitigation		
	measures should any further evidence be found during pre-construction		
	surveys. The mitigation measures include the restriction of works		
	overnight from 2 hours before sunset to 2 hours after sunrise along		

Table 5.9: Ecological Receptors Scoped Out



Ecological Receptor Scoped Out	Reasoning
	watercourses showing signs of use by otters to prevent disturbance of
	otters which may be commuting through the Proposed Development.
River Oykel SAC	The Proposed Development would cross (oversail as an OHL) the Allt an Ràsail watercourse, a main tributary of the River Cassley, part of the River Oykel SAC. The Proposed Development would also cross (oversail as an OHL) several other smaller tributaries of the River Cassley and River Oykel SAC, see Chapter 7 for further details on watercourse crossings.
	The main potential interaction between the Proposed Development and the River Oykel SAC features concerns potential pollution / runoff from the site during construction, which could end up in the River Cassley and the River Oykel SAC, affecting water quality. The Proposed Development's route selection, alignment selection and technology design has sought to achieve the greatest separation distance between the Proposed Development and the designated site, seeking to avoid oversailing the SAC. Mitigation built into the project and proposed construction methods are designed to minimise any potential effects to the River Oykel SAC.
	Construction will be undertaken in accordance with best practice and Guidance for Pollution Prevention (GPP), adhering to the Applicant's GEMPs (specifically, Working in or Near Water and Watercourse Crossings) and the site-specific CEMP. A buffer zone (10 m) around the watercourse network would be implemented. The site-specific CEMP will set out how suitable pollution prevention measures will be adopted to prevent pollution of the watercourses onsite and any watercourses downslope of the Proposed Development (see paragraph 5.7.3). The ECoW will monitor compliance and implementation of all silt prevention measures and pollution control measures. Assuming all embedded mitigation measures are also implemented correctly, effects on this site and the species it is designated for are not considered likely.
Dornoch Firth and Morrich More SAC	Located 7 km downstream, designated for estuarine and saltmarsh habitats and common seal, these habitat types and species are unlikely to be affected by the Proposed Development at such distance. The SAC is also designated for otter, which can have large territories (up to 30 km) and as such it is possible that otters associated with this SAC could range within the Proposed Development. The SPP for otters details the required monitoring and mitigation measures should any further evidence be found during pre-construction surveys. The mitigation measures include the restriction of works overnight from 2 hours before sunset to 2 hours after sunrise along watercourses showing signs of use by otters to prevent disturbance of otters which may be commuting through the site.
River Evelix SAC	Located 9.4 km southeast, designated for freshwater pearl mussel, it is considered that there is unlikely to be effects to this SAC from the Proposed Development due to the distance from site and lack of hydrological connectivity.
Kyle of Sutherland	The Proposed Development is located upslope of the Kyle of Sutherland
Marshes SSSI	Marshes SSSI, with the proposed temporary access track north of



Ecological Receptor Scoped Out	Reasoning
	Linsidemore being the closest component of the Proposed Development to the SSSI, located 490 m north of the SSSI. The main potential interaction between the Proposed Development and this SSSI features concerns pollution / runoff from the Proposed Development during construction, which could result in damage to wetland habitats. Construction will be undertaken in accordance with best practice and GPPs, adhering to the Applicant's GEMPs (specifically, Working in or Near Water and Watercourse Crossings) and the site-specific CEMP. The CEMP will set out how suitable pollution prevention measures will be adopted to prevent pollution of the watercourses onsite and any watercourses downslope of the Proposed Development (see paragraph 5.7.3). The ECoW will monitor compliance and implementation of all silt prevention measures and pollution control measures. Assuming all embedded mitigation measures are also implemented correctly, effects on this site and the habitat it is designated for are not considered likely.
Ancient Woodland	The effects on AWI are scoped out of the appraisal due to the absence of
Inventory (AWI)	felling within AWI of semi-natural origin (Categories 1a and 2a) or LEPO (Categories 1b or 2b). The small area of felling required in Category 3 Roy woodland is in an area of non-native conifers, the removal of which would allow increased light to reach the woodland floor, promoting the regeneration of a more diverse flora.
GWDTE	Wet heath habitat is widespread within the HSA and is a common feature of the wider area out-with the HSA and can be considered a GWDTE under certain circumstances. Due to its extensive distribution, it will not be possible for the Proposed Development to avoid wet heath habitat entirely. Chapter 7 appraises this habitat type as likely to be predominantly sustained by rainfall and surface water instead of groundwater.
	For flushes such as M10, M6 and M23, no poles are proposed within these habitats that may have high potential to be GWDTE. A LoD of 50 m either side of the centre line of the proposed OHL and 25 m either side of the centre line of proposed tracks has been sought to allow for any further micro-siting that may be required during the construction process. During pre-construction surveys, the locations of GWDTE will be mapped and demarcated by the ECoW. The site-specific CEMP will include a buffer distance of a minimum of 10 m from these habitats.
Bats	The effects on bats are scoped out of the appraisal due to the absence of features to support bats or field signs found within disturbance distance (30 m) of the Proposed Development. The SPP for bats details the required monitoring and mitigation measures should any evidence be found during pre-construction surveys.
Badger	The effects on badgers are scoped out of the appraisal due to the absence of signs found during baseline surveys and unsuitable nature of the majority of the PSA. The badger SPP details the required monitoring and mitigation measures should any evidence be found during preconstruction surveys.



Ecological Receptor Scoped Out	Reasoning
Otter	Evidence of otter was not found within disturbance distance of the
	Proposed Development (30 m for resting sites or 200 m for breeding
	sites). The SPP for otters details the required monitoring and mitigation
	measures should any further evidence be found during pre-construction
	surveys. The mitigation measures include the restriction of all works
	overnight or within 2 hours of sunset / sunrise, if possible, close to
	waterbodies and watercourses showing signs of regular use by otters to
	prevent disturbance of otters which may be commuting through the site.
Red squirrel	Whilst evidence of red squirrel was found in two areas of woodland
	across the PSA no dreys were identified. The felling for the OC is not
	considered to significantly affect habitat availability for this species, given
	the connectivity to other suitable habitat within the vicinity. The red
	squirrel SPP details the required monitoring and mitigation measures
	should any evidence be found during pre-construction surveys.
Amphibians and Reptiles	The effects on amphibians and reptiles are scoped out of the appraisal
	due to the area being identified as out-with the known range or
	distribution for great crested newts and no significant findings of reptile
.	refugia were found during baseline surveys.
Pine marten	Whilst evidence of pine marten was found at a number of locations
	across the PSA, no dens were identified. The feiling for the OC is not
	considered to significantly affect habitat availability for this species, given
	the connectivity to other suitable nabitat within the vicinity. The pine
	marten SPP details the required monitoring and mitigation measures
luninge UKRAD engeleg	should any evidence be found during pre-construction surveys.
Julliper, UNDAP Species	beath babitats west of Shin Forest and north of Linsidemore. Some
	shrubs are within 30 m of the Proposed Development (note locations and
	access track) A micro-siting allowance of 50 m either side of the centre
	line of the proposed OHL and 25 m either side of the centre line of
	proposed tracks has been sought to allow for any further micro-siting that
	may be required during the construction process. During pre-construction
	surveys, the locations of Juniper (and other UKBAP) species will be
	mapped and demarcated by the ECoW. The site-specific CEMP will
	include a buffer distance of 5 m from juniper shrubs for works associated
	with the Proposed Development.
Invasive non-native	A small number of individual rhododendron shrubs were recorded
species	scattered across wet heath habitats in the north-west section of the HSA.
	Rhododendron is an invasive non-native species (INNS that can form
	dense scrub in woodlands and upland habitats, which can then alter the
	natural structure of habitats. The scattered shrubs are not located within
	50 m of proposed works and therefore it is unlikely that the stand would
	be disturbed and spread as a result. During pre-construction surveys, the
	location of rhododendron will be mapped and included in the site-specific
	CEMP. The CEMP will include biosecurity measures to prevent the
	introduction and spread of INNS.



Designated Sites

5.7.6 Effects to designated sites within proximity to the Proposed Development have been scoped out following the assessment of project design and embedded mitigation, as discussed in **Table 5.9: Ecological Receptors Scoped Out**.

Habitats

Pole, CSE and Access Track Construction

- 5.7.7 The Proposed Development would result in a disturbance of habitats around each of the proposed pole locations and direct, permanent loss of habitats within the footprint of the two sections of permanent access track. Each pole would require an excavation of approximately 3 m long and 3 m wide, resulting in total habitat disturbance of 0.19 Ha for all 208 poles. The duration of habitat disturbance would be temporary, with reinstatement of the ground around each of the pole locations typically being undertaken once each pole has been installed. The CSE structure is located within an area of wet heath habitat and would require an excavation of approximately 54 m², with 10 m² permanent habitat loss and 44 m² reinstated following the installation of the CSE. Table 5.10: Habitat Loss and Disturbance resulting from the Proposed Development provides area totals for each habitat type affected by works to install poles and the CSE.
- 5.7.8 Out-with woodland areas, wet dwarf shrub heath has the greatest habitat disturbance as a result of the proposed pole locations (47 poles, resulting in the temporary disturbance of 0.04 Ha). Combined blanket bog and degraded blanket bog habitat disturbance as a result of the proposed pole locations would be 0.03 Ha. In areas of sensitive habitat such as blanket bog and wet heath, works will be undertaken in accordance with the Applicant's GEMP Working in Sensitive Habitats (see **Appendix 3.2**), which includes the use of trackway panel construction or wooden bog boards to avoid damage to underlying sensitive peatland habitats.
- 5.7.9 Habitat loss resulting from access tracks will be limited to two sections of permanent access track (0.1 km between the proposed CSE structure and the consented Achany Wind Farm Extension access track and 1.5 km north of Linsidemore). The section of access track to the CSE structure is located on Class 2 Peatland habitat and would result in direct habitat loss of blanket bog habitat. The section of access track to the north of Linsidemore avoids Class 1 and Class 2 Peatland habitat but would result in direct habitat loss of wet heath and dry heath habitat, along with smaller areas of degraded blanket bog and blanket bog. Table 5.10: Habitat Loss and Disturbance resulting from the Proposed Development provides details for each habitat type affected by works to install permanent access tracks.
- 5.7.10 Permanent access tracks are anticipated to be constructed of stone, with a running width of 5 m and an overall construction corridor of approximately 8 m to allow for suitable drainage and pollution prevention measures. The two sections of permanent track would be partially reinstated upon commissioning of the OHL and reduced in width to approximately 3 m for maintenance access.
- 5.7.11 As described in **Chapter 3**, the proposed permanent access track would be constructed in accordance with best construction methods, and with reference to NatureScot's good practice guide on constructing tracks in Scottish uplands²⁹. It is anticipated that floating track methods would be utilised over areas of deep peat where topography allows. Floating track construction avoids disturbance to hydrological connectivity of habitats and as such, reduces the direct effects of the footprint of the access track.
- 5.7.12 All other access tracks are proposed to be temporary and seek to use temporary trackway solutions including trackway panels (e.g. Terrafirma Dura-Base or Trackway), timber log mats or bog mats to avoid damage to underlying peatland habitats.

²⁹ Scottish Natural Heritage (SNH) (2015) Constructed tracks in the Scottish Uplands. Available online: https://www.nature.scot/doc/archive/constructed-tracks-scottish-uplands



5.7.13 Access across unprotected peatland or other sensitive habitats will be restricted to low ground pressure vehicles and plant only (i.e. suitable ATV- argocat or soft track, or wide spread tracked machines), and will avoid rutting.

Tree Felling and Vegetation Clearance

- 5.7.14 The felling requirements for the Proposed Development include felling to create the OHL OC and permanent access track OC and any additional tree felling or vegetation clearance along the temporary access tracks. The OHL OC is defined with reference to the distance at which a tree could fall and cause damage to the OHL, resulting in supply outage. The OC for the Proposed Development has a width of 72 m (i.e. 36 m either side of the OHL), further reduced to a 60 m OC when felling within areas of broadleaved trees, however, where this includes native Scots pine, the OC has been increased to that of the commercial conifer areas, as the same tree height may be attained by native Scots pine.. The majority of felling to create the OHL OC is within commercial non-native conifer plantation of varying ages (see **Appendix 5.1**. TNs 25, 31, 70 and 71). The OHL and permanent access track OCs also crosses areas of mixed and broadleaved restocked woodlands (see **Appendix 5.1**, TNs 64 and 65). **Table 5.10: Habitat Loss and Disturbance resulting from the Proposed Development** provides details for each habitat type affected by felling.
- 5.7.15 The overall felling totals provided in Chapter 9 for the OHL and permanent access tracks OC is 49.70 ha. The way that woodland is classified in Chapter 9 differs from the habitat classification of woodland used in this ecological appraisal. The UK Habitat Classification³⁰ defines woodland as areas with a minimum of 25 % tree cover, whereas the National Forest Inventory³¹ defines woodland as '*land with a minimum area of 0.1 ha under stands of trees with, or with the potential to achieve, tree crown cover of more than 20%. Areas of open space integral to the woodland are also included*', with areas of felled woodland also included. The UK Habitat Classification has a separate category for felled woodland and a minimum mapping unit (MMU) of 5m², meaning that forestry rides and open glades within forestry blocks are mapped as the appropriate open ground habitat. For example, Chapter 9 classifies areas of dry heath with scattered young conifer regen as woodland, whereas in this ecological appraisal maps the area as h1b5 dry heaths, upland, as the scattered trees do not reach 25 % cover.
- 5.7.16 This ecological appraisal identifies 32.74 ha of felling, the difference of 16.96 ha between this and the total used in Chapter 9 accounts for areas of open ground habitat with less than 25 % cover of trees and felled woodland (see Appendix 5.1, TNs 32 and 33 for examples of areas included as woodland in Chapter 9, but classified as felled within UKHab Classification). The felling calculations included in Table 5.10 below (totalling 32.74 ha) is more representative of the habitat loss based on UKHab and NVC surveys rather than deforestation being calculated for Scottish Governments policy on Control of Woodland Removal and off-site Compensatory Planting requirements as represented in Chapter 9.
- 5.7.17 No felling is proposed in areas of AWI (Categories 1a and 2a) or LEPO (Categories 1b). An area of 0.59 Ha area of Other woodlands on 'Roy' woodland sites (Category 3) is proposed to be felled within Shin woodlands. The woodland types that fall within the OC identified as Category 3 are areas of mature non-native commercial conifer plantation (see **Appendix 5.1**, TN 71). The section of permanent access track north of Linsidemore traverses an area of Category 2b LEPO. This area has been clearfelled and no further felling is required (see **Appendix 5.1**, TN 57), other than the removal of scattered young non-native conifers. Temporary access tracks have been designed to utilise areas of open ground where possible (e.g. previously felled woodland, forestry rides, existing tracks or areas proposed to be cleared within the wayleave for the OC) and felling for

³¹ Forestry Commission (2001) National Inventory of Woodland and Trees – Scotland. Available from: https://www.cdn.forestrresearch.gov.uk/2022/02/niscotland.pdf

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³⁰ UKHab Ltd (2023) UK Habitat Classification Version 2.0. Available from: https://www.ukhab.org



access tracks does not require any additional felling out with the OC. Full details on felling are provided in **Chapter 9.**

UKHab Habitat Type	Felling for OC and Permanent access tracks OC (Ha)	Habitat Disturbance from Pole Installation (Ha)	Permanent Access Track Direct Habitat Loss (Ha)	Permanent Access Track Indirect Habitat Disturbance (Ha)
f1a5 blanket bog	0	<0.01	0.05	0.36
f1a6 degraded blanket bog	0	0.02	0.07	0.25
h1b6 wet heathland with cross-leaved	0	0.04	0.24	0
heath, upland				
h1b5 dry heaths, upland	0	0.01	0.09	0
g1b6 other upland acid grassland	0	<0.01	0	0
g1c bracken	0	<0.01	0.02	0
w2c other coniferous woodland	26.65	0	0	0
w2c other coniferous woodland	0	0	0.09	0
(felled)				
w1h other mixed woodland	5.87	0	0	0
w1g other broadleaved woodland	0.22	0	0	0

Table 5.10: Habitat Loss and Disturbance resulting from the Proposed Development

Protected Species

5.7.18 Effects on protected species within proximity to the Proposed Development have been scoped out following the appraisal of project design and embedded mitigation, as discussed above and **Table 5.9**.

Cumulative

- 5.7.19 Effects on habitats or species populations that may be non-significant from individual development, can become significant when combined with nearby consented or proposed projects that are subject to an EIA process. This appraisal considers the potential for cumulative effects with other OHL and wind farm developments that are consented or at application stage. Operational developments including wind farms and OHLs are considered to form part of the baseline. Projects at scoping stage are not considered as they generally do not have sufficient information on potential effects to be included. Projects that have been refused of withdrawn are also not included. Developments that are considered within this appraisal are included in Table 5.11: Energy Developments ³². Impacts to priority habitats are included for each development where information is available.
- 5.7.20 In general, for wind farm developments where peatland habitats are present or affected, mitigation and / or additional restoration / enhancement / creation of peatland and upland habitats is proposed to compensate and offset any effects. Mitigation and enhancement areas also tend to be larger or many orders of magnitude greater than the predicted loss. The requirement for each development project to provide significant biodiversity enhancement is also now imperative through NPF4 Policy 3.

³² Based on a cumulative baseline search of consented or submitted planning applications three months prior to submission of the application to allow finalisation of the EA.

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5.7.21 Overall, despite direct habitat loss in the short-term, the long-term cumulative enhancement and restoration of peatland and upland habitats in the region should lead to a longer-term increase in the extent, and in many cases quality, of bog and associated upland habitats.

Development	Stage	Distance from Proposed Development (km)	Potential Effects and Mitigation
Achany Wind Farm	Consented	0 km	The EIA reports effects to upland
Extension			peatland habitats including blanket bog.
			An outline habitat management plan
			proposes to restore and enhance c. 307
			ha blanket bog habitat (over seven times
			greater than the predicted habitat loss).
Strath Oykel Wind	Consented	4.7 km south-west	The EIA reports effects to upland habitats
Farm			and an anticipated loss of 1.61 ha wet
			modified bog. Wet modified bog
			restoration is proposed as compensation.
Garvary Wind Farm	Consented	4 km north-east	The EIA reports the anticipated loss or
			temporary degradation of 25.65 ha of
			blanket bog. A draft HMP seeks to
			restore a minimum of 25.65 ha of
			degraded blanket bog and undertake
			17.5 ha of native woodland planting.
Lairg II Wind Farm	Consented	4.8 km north-east	The EIA reports an anticipated loss of
			8.34 ha blanket bog. A draft habitat
			management plan proposes to undertake
			ditch blocking to improve areas of
			degraded peatland.

Table 5.11: Energy Developments within 5 km of the Proposed Development

5.8 Mitigation

5.8.1 General and embedded mitigation measures for habitats and species, such as complying with best practice, micrositing provisions, pre-construction surveys for protected species, the presence of an ECoW and adherence to a site-specific detailed CEMP are included in paragraphs 5.7.1 – 5.7.4. No significant construction effects were identified, and no non-standard mitigation is proposed for the construction phase.

5.9 Biodiversity Enhancement

- 5.9.1 In line with NPF4, consideration has been given to how the Proposed Development can deliver enhancement to biodiversity over its lifetime. A Biodiversity Net Gain (BNG) Assessment has been carried out for the Proposed Development, included in **Appendix 5.2: Biodiversity Net Gain Assessment** and provides details of habitat enhancement measures required to achieve a 10 % biodiversity gain.
- 5.9.2 The Proposed Development would result in impacts to blanket bog and degraded blanket bog habitat. It is proposed that a Habitat Management Plan (HMP) will be developed by the Applicant that will include implementation of restoration techniques (e.g. peat hag reprofiling and stabilisation; revegetation of areas of bare peat; drain blocking) to improve the quality of the surrounding peatland habitats and provide compensation for the loss or disturbance for blanket bog and degraded blanket bog habitat. The HMP will tie in with and



complement the proposed peatland restoration work that is to be undertaken for the Achany Wind Farm Extension HMP. An outline HMP is provided in Section 5.10.

5.10 **Outline Habitat Management Plan**

- 5.10.1 This Outline HMP section sets out the criteria for delivering compensatory blanket bog habitat restoration and management for the Proposed Development. A core aim of the plan will be to help conserve, enhance and restore degraded or modified blanket bog habitats. The HMP proposals will seek to:
 - 1. Restore and enhance blanket bog habitat in an area greater than the combined predicted habitat loss associated with the Proposed Development, which would involve:
 - reprofiling of gullies with vegetation (turves) used from nearby donor areas to revegetate the sides of the gullies;
 - use of turf / peat dams at regular intervals (dependent on gradient and local conditions) on the bases of gullies to rewet and reduce erosion:
 - reduce height of hags, with hag walks being reprofiled and carpeted with donor turves;
 - install bunds in peat pans to hold back water and prevent sediment from flowing downhill during storms, alongside spot turfing from nearby areas;
 - reduce the height of high points in areas of micro-erosion by cross-tracking with a low ground pressure machine, with turves borrowed locally to create micro-blockages in small emerging gullies; and
 - identification of historical drainage ditches within areas of modified or degraded blanket bog and installation of dams (artificial or natural).
 - Develop and undertake a programme of vegetation condition monitoring before and after restoration 2 works to monitor the progress and success or failure of the restoration.
 - 3. Work in conjunction with landowners as part of the local Deer Management Group to reduce herbivore impacts in areas of restored peatlands.
- 5.10.2 Candidate restoration areas will be identified during the preparation of the HMP through engagement with landowners, use of high-resolution aerial imagery and OS mapping, followed by site walkovers and peatland condition assessments. The potential areas for restoration will be refined following further specialist surveys and the exact areas will be agreed with the landowners, contractors and NatureScot as part of the development of the HMP prior to any work commencing.
- 5.10.3 The implementation of the HMP would be funded in full by the Applicant. All peatland restoration works would follow best practice³³, the Peatland ACTION technical guidance³⁴ and be undertaken by experienced contractors with a proven track record of undertaking successful peatland restoration works.
- 5.10.4 Monitoring reports would be undertaken at regular intervals detailed in the HMP and would be submitted by the Applicant to NatureScot and THC. The HMP will be reviewed regularly to ensure that management objectives are being met.
- 5.10.5 As calculated in **Chapter 9**, 49.70 ha of woodland removal would be required for the OC. The Applicant is committed to meeting the Scottish Government's Control of Woodland Removal Policy (CoWRP) objective of no net loss of woodland for the Proposed Development and are in discussions with landowners regarding compensatory planting arrangements. Further detail on compensatory planting is provided in Appendix 9.1

³³ Thorn, T., Hanlon, A., Lindsay, R., Richards, J., Stoneman, R. and Brooks, S. (2019). Conserving Bogs: The Management Handbook (2nd Edition) peatlandprogramme.org/resources/restoration-practice/conservation-handbook)
³⁴ Peatland ACTION (2022) Technical Compendium. Available from: https://www.nature.scot/doc/peatland-action-technical-compendium



Compensatory Planting Management Strategy. Note that compensatory planting is based on land ownership of woodland areas (this includes felled and some open ground area) and uses the higher calculation of 49.70 ha rather than 32.74 ha as calculated based on UKHab and NVC survey data as explained in Section 5.7.15 above.

5.11 Summary

- 5.11.1 The Proposed Development has largely been designed to avoid areas of sensitive habitats and protected species shelters as far as possible giving consideration to other constraints to the project. Best practice construction techniques will be employed to safeguard the water environment and disturbance to habitats during the installation of infrastructure associated with the Proposed Development will be minimised by adherence the site-specific CEMP, which will include detailed methods of soil management and reinstatement.
- 5.11.2 Protected species signs found during surveys included those of otter, water vole and structures with potential to support roosting bats. By adoption of the Applicant's detailed GEMPs and SPPs and the undertaking of preconstruction surveys for protected species, any potential effects on protected species as a result of the Proposed Development could be reduced or eliminated.
- 5.11.3 A BNG Assessment has been undertaken by the Applicant, who is committed to achieving a minimum of 10 % gain through habitat enhancement. This will be achieved through the development and implementation of a HMP with the aims of restoring degraded blanket bog to compensate for the loss of blanket bog habitat during the construction of the Proposed Development. The implementation of restoration proposals would also have downstream benefits resulting from decreased erosion and runoff into the onsite watercourses and subsequently the River Cassley, part of the River Oykel SAC.
- 5.11.4 An ECoW will be appointed to undertake pre-construction surveys for protected species and invasive nonnative species, provide advice throughout construction and monitor compliance with environmental legislation and documentation (including GEMPs, SPPs and the site-specific CEMP).