



EDF Renewables

LIDDESDALE WIND FARM

Scoping Report





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EXECUTIVE SUMMARY

Purpose of this Report

Liddesdale Wind Farm (the “Proposed Development”) would comprise up to 80 wind turbines with tip heights up to 250 metres and would have an installed capacity in excess of 50 Megawatts. It is located within Wauchope Forest and Newcastleton Forest, to the west of the Northumberland National Park, between the A7 and the A68 roads. It is located entirely within the administrative boundary of the Scottish Borders Council.

The purpose of this document is to serve as a formal request to the Scottish Ministers to provide a Scoping Opinion under Regulation 12 of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.

This Report sets out the proposed scope of the Environmental Impact Assessment (EIA) for the Proposed Development, the findings of which would be presented in an EIA Report. This scoping request would inform the EIA of a forthcoming application under Section 36 consent and a deemed planning permission to construct and operate the Liddesdale Wind Farm.

Summary of Findings of the Scoping Report

The EIA would focus on any significant effects likely to arise during the construction, operation, and decommissioning of the Proposed Development.

This Scoping Report draws on baseline information currently available to identify where significant effects are likely as a result of the Proposed Development. The following **Table 1** shows a summary of the proposed scope of assessment for each environmental topic discussed in this Scoping Report:

Table 1 - Summary of Scope

Environmental Topic	Summary of Proposed Scope of Assessment	Element Proposed to be Scoped Out
Landscape and Visual	<p>A Study Area of 45km for the LVIA, and 60km for cumulative development identification.</p> <p>Receptors comprising landscape character types, landscape character areas, the Dark Sky Park, settlements, residential properties, A Roads, B Roads and C Roads, recreational routes, core paths, public rights of way and visitor attractions identified in the Zone of Theoretical Visibility (ZTV).</p> <p>A residential visual amenity assessment within 2km of turbines, and a night-time lighting assessment.</p>	<p>Developments at scoping stage, turbines under 50m in height, and variation to consented schemes beyond 10km.</p> <p>Wild Land Assessment.</p> <p>The AONB.</p> <p>Receptors not visible in the ZTV.</p> <p>Receptors beyond the Study Area.</p>

Environmental Topic	Summary of Proposed Scope of Assessment	Element Proposed to be Scoped Out
Cultural Heritage	Direct and indirect effects on designated and non-designated heritage assets that are within the Site and within 500m of the Site boundary. A wider 10km Study Area would also be used to identify potential indirect effects on designated and nationally important heritage assets.	Assets out with the 10km Study Area. Assets outside the ZTV within the Study Area.
Ornithology	Considering the information available regarding the species assemblage and distribution at the Site, it is considered that goshawk, hen harrier, nightjar and osprey are likely to be the species considered as Important Ornithological Features and therefore would be scoped into the assessment.	Common and / or low conservation species not listed as Annex 1/Schedule 1 species, not included in non-statutory lists, and passerine species not generally considered at risk from wind farm developments. Subject to the results of the collision risk modelling, effects relating to any target species not identified to be breeding within the relevant Study Area would be scoped out of the assessment. Designated sites Langholm – Newcastleton Hills SPA, Carter Fell to Peel Fell SSSI, Kielderhead and Emblehope Moors SSSI and River Eden and Tributaries SSSI would be scoped out of the assessment due to no potential for a likely significant effect.
Ecology (including peat)	The detailed scope of assessment would be defined by the outcome of the desk study and habitat and species surveys as the EIA progresses. However, based on an initial desk study appraisal and professional judgement, the following important ecological features are likely to be taken forward for further detailed assessment: statutory and non-statutory designated sites, Annex 1 habitats (including peatland habitats), potential Groundwater Dependent Terrestrial Ecosystems (GWDTEs), otter, water vole, badger, bat, red squirrel, pine marten, salmonids and fresh water pearl mussel. Should any additional sensitive features be identified during the course of the surveys, these would be included within the assessment as appropriate.	

Environmental Topic	Summary of Proposed Scope of Assessment	Element Proposed to be Scoped Out
Forestry	<p>A forestry impact assessment would be prepared. Changes to the woodland structure would be described and analysed, including changes to woodland composition, timber production, traffic movements and felling and restocking plans. The resulting changes to the woodland structure would be assessed for compliance with the UK Forestry Standard and the requirement for compensation planting to mitigate against any woodland loss would be identified.</p>	Woodland outside of the Site
Geology, Hydrology and Hydrogeology	<p>The key scope for geology, hydrology and hydrogeology would relate to water quantity (level and flow) and quality. However, depending on the effects on surface water flows, there may also be effects on immediate and downstream morphology and sediment dynamics and flood risk. The following receptors have been scoped in within 10km of the Site boundary:</p> <p>Groundwater within bedrock and the associated Newcastleton, Jedburgh and Wauchope Forest Water Framework Directive (WFD) groundwater bodies;</p> <p>Watercourses and associated WFD surface water bodies, namely Larriston Burn, Kershope Burn, Tweeden Burn and the Liddel Water / Peel Burn draining the Newcastleton Forest site and the Black Burn, Jed Water, Hyndlee Burn, the Rule Water / Wauchope Burn, Lurgies Burn, Flish Burn, Roughley Burn / Laidlenhope Burn, Dawston Burn / Alison Sike and the Liddel Water / Peel Burn draining the Wauchope Forest part of the Site;</p> <p>Nearby abstractions, springs and water resource use, including Private Water Supplies (PWS); and</p> <p>Water conditions supporting conservation sites, including GWDTEs.</p>	<p>In terms of the receptors 'scoped out' from further assessment, these would be confirmed but are likely to include the following:</p> <p>Kershope Bridge SSSI and Langholm-Newcastleton Hills SSSI and SPA Kielder Mires SSSI, Border Mires SAC, Kielderhead and Emblehope Moors SSSI are all located out with the surface water catchments of the Proposed Development;</p> <p>Other conservation sites outside of the Study Area, given the relatively small scale of the Site relative to the downgradient surface water catchments; and</p> <p>Flood risk, given the small scale of the Site relative to the downgradient surface water catchments and the paucity of downstream property and infrastructure.</p>
Traffic and Access	<p>Currently scoped in receptors are the B6357, A6088, A68 and A7 and the smaller scale road infrastructure that operates from these receptors. It is noted that as the sources for construction materials are not yet known, other road infrastructure could need to be identified in the future. Receptors also include road users (including pedestrians and cyclists) and properties along the road.</p>	<p>It is considered that the effects of operational traffic would be negligible and therefore it is proposed that the assessment of the operational phase of the Proposed Development is 'scoped out' of the EIA.</p> <p>It is also considered that the assessment of the decommissioning phase of the Proposed Development is 'scoped out' of the EIA.</p>

Environmental Topic	Summary of Proposed Scope of Assessment	Element Proposed to be Scoped Out
Noise and Vibration	<p>The potential effects from the construction noise (including construction traffic) of the Proposed Development would be considered. Operational noise would be considered, especially from noise levels that exceed the ETSU-R-97 noise limits (significant effects).</p>	<p>Vibration effects from the construction of the Proposed Development are scoped out due to there being no receptors close enough to the Site to experience adverse effects.</p> <p>The potential effects from operational traffic noise are scoped out due to the Proposed Development developing minimal operational traffic.</p>
Socio-economics, Tourism and Recreation	<p>The potential effects of the Proposed Development upon local employment, visitor attractions, recreational facilities and public accesses would be considered. The potential effects on local tourism and recreation economy/assets would also be considered.</p> <p>The potential indirect effects (the economic activity generated as a result of purchases in the supply chain) and induced effects (the effects of spending by households in the local economy as a result of direct and indirect effects activity related to the Proposed Development) of the Proposed Development would be considered.</p>	<p>The potential effects in terms of population increases to a local area is not considered as the Proposed Development is not of sufficient scale to cause a considerable migration of people to the local area.</p>
Telecommunications, Aviation and other considerations	<p>The potential effects of the Proposed Development on infrastructure (including utilities), telecommunications and broadcast services would be considered.</p> <p>The potential air quality effects (including from dust) would be considered for the construction of the Proposed Development.</p> <p>The potential effects from lighting on the wind turbines, which are an aviation requirement, would be considered during the operational phase of the Proposed Development, to ensure such effects are acceptable.</p> <p>A wide range of potential Major Accidents and Disasters has been scoped in to ensure the potential effects from such unlikely events have been considered appropriately but in a proportionate manner.</p>	<p>The potential air quality effects of the operation of the Proposed Development are scoped out due to the potential effects being too small.</p> <p>As the Proposed Development would not produce heat or radiation, these elements are scoped out.</p> <p>The potential effects from lighting during the construction phase of the Proposed Development are scoped out due to such effects being easily manageable and minor in nature.</p> <p>Shadow Flicker has been scoped out as the likelihood of this phenomenon is unlikely due to the design and spacing of the Proposed Development's turbines.</p>

1. INTRODUCTION

1.1 OVERVIEW

- 1.1.1. EDF Renewables UK, (hereafter referred to as the “Applicant”) has identified a potential opportunity to develop a commercial scale wind farm in the Scottish Borders.
- 1.1.2. The Proposed Development Site (“the Site”) is located within Wauchope Forest and Newcastleton Forest, to the west of the Northumberland National Park, south of Hawick, and north of Kielder, between the A7 and the A68 roads. It is located entirely within the administrative boundary of the Scottish Borders Council. The majority of the Site comprises commercial forestry. **Figure 1.1 in Appendix A** shows the Site location in the wider landscape, and **Figure 1.2** shows the Site boundary. For the purposes of the Scoping Report, the Site refers to the boundaries shown within these Figures.
- 1.1.3. The Applicant proposes to submit an application under Section 36 of the Electricity Act 1989, as amended, seeking consent to construct and operate the Proposed Development. For the purpose of identifying scope, a maximum of 80 turbines has been assumed, with a tip height of up to 250 metres (m). In addition to turbines, it is assumed that there would be new and upgraded access tracks, crane hard standings, a battery storage area, solar panels, two electricity sub-stations, borrow pits, three anemometer masts and two temporary construction compounds.
- 1.1.4. The Proposed Development falls under Schedule 2 of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the “EIA Regulations”) as a generating station (Schedule 2(1)). A Schedule 2 development constitutes EIA development if it is likely to have significant effects on the environment by virtue of factors such as its nature, size or location as set out in Schedule 3 of the EIA Regulations.
- 1.1.5. In recognition of the scale and nature of the Proposed Development, the Applicant would undertake an EIA to assess potentially significant environmental effects. The Proposed Development would require authorisation from the Scottish Ministers as it would be a power generating station in excess of 50 megawatts (MW).

1.2 BACKGROUND

- 1.2.1. There are a number of existing, consented or proposed wind farms in the vicinity of the Site. A scoping opinion (**Appendix B**) was received from the Scottish Government based on a previous scoping report submitted by Partnerships for Renewables (PfR) for Wauchope Newcastleton Windfarm in January 2016. The responses received as part of the scoping opinion have been reviewed and any relevant information is included in this Scoping Report.
- 1.2.2. The PfR scoping report identified the potential for 90 wind turbines with a maximum tip height of 132 metres. The PfR scoping opinion suggested that any application should be split, and three separate applications requiring three separate Environmental Statements be submitted due to concerns identified by consultees regarding the need to treat the wind farm as three separate sites. This was because each site had its own access, was located within a separate Community Parish Area and were between 3.5 – 13km distance from each other. The scoping opinion stated *“the overwhelming consensus of consultees is the same as that stated by SBC in its response. Consequently, it is the*

opinion of the Scottish Ministers that any application subsequently submitted should in fact be three separate applications”.

1.2.3. Whilst it is acknowledged that the Site is in three distinct clusters, it is considered that the following points provide justification for the retention of one application:

- There is the potential for more than one access point onto and off the local highway network, for each of the clusters. This would be developed further through the iterative design process, to ensure that the traffic movement within the Site can operate safely;
- The Proposed Development would have one grid connection;
- There is one landowner involved;
- Regardless of how the Proposed Development is applied for, the EIA would need to consider all three clusters, separately and together, and then in combination with other applications, consented and operational wind farm developments;
- In terms of consultation and engagement, meetings and events, the three clusters would be considered individually and in combination, to ensure that potential issues are identified at an early stage, and can be fed into the iterative design process, thereby saving public time and money;
- In considering the Proposed Development as a whole, there is greater opportunity for wider benefits in terms of biodiversity, community and economic benefits;
- There would be less administrative time required from the ECU and Local Planning Authorities as one application would be registered, and one set of consultation responses required;
- Should there be a Public Local Inquiry, it is likely that the three clusters would be considered through a co-joined inquiry and assessed in isolation, and then together. This is the same approach as the proposed single application submission would take;
- Any concerns regarding individual turbines in any of the clusters, would be identified through the iterative design process, formal consultation and ongoing engagement with relevant consultees and communities. The results of this would be illustrated in the design statement, and set out in the Consultation Report and Gatecheck Report; and
- National energy policy and planning policy demonstrate very clear support for large scale national developments (each of the three clusters would be in excess of 50MW, and therefore be considered to be National Development) to meet the renewable energy targets, and to reach Scotland’s net zero target.

1.2.4. The PfR scoping opinion requested that in addition to policies and plans listed, the English National Planning Policy Framework should also be considered. This is addressed in **Section 4.4.1**.

1.3 CONTENTS OF THIS REPORT

1.3.1. This Report sets out the proposed scope of the EIA, which is to be submitted to the Scottish Ministers as a formal request for a scoping opinion, which is defined under the EIA Regulations as “*an opinion adopted by the Scottish Ministers as to the scope and level of detail of information to be provided in the EIA Report*”.

1.3.2. The purpose of this Report is therefore to:

- Define the Proposed Development being considered (**Chapter 2**);
- Describe the consenting and EIA process and general methodology, and the consultation process in relation to the Proposed Development (**Chapter 3**);
- Outline the Legislation, Energy Policy and Planning Policy Context (**Chapter 4**);
- Outline the aspects of the Proposed Development that could potentially result in significant environmental effects (**Chapter 5 – 15**);
- Present a summary of mitigation template for the EIA in **Table 16.1 (Chapter 16)**; Prepare a proposed contents list for the EIA Report (**Chapter 17**); and
- Outline the proposed statutory and non-statutory organisations to be consulted during the EIA process (**Chapter 18**).

1.4 THE APPLICANT

1.4.1. EDF Renewables UK (EDF-R) is part of one of the world's largest electricity companies, and their investment and innovation in the UK is bringing down costs for consumers while bringing significant benefits to communities. With an operating portfolio of 35 onshore wind farms and two offshore windfarms (over 1GW) and battery storage units, they are providing much needed, affordable, low carbon electricity to the UK.

1.5 THE AGENT

1.5.1. WSP UK Ltd (WSP) has been commissioned to prepare this Scoping Report. As a multi-disciplinary company, WSP can offer a 'one company' solution who have in excess of 20 years' experience of preparing EIAs for onshore wind farm development throughout the UK. WSP has a tried and tested approach to the assessment of environmental effects, which minimises consenting risk by bringing key stakeholders on board through meaningful consultation and engagement throughout the EIA process. The WSPEIA methodology carries with it the Institute of Environmental Management and Assessment's.



2 PROJECT DESCRIPTION

2.1 THE DEVELOPMENT SITE

- 2.1.1. The Site is located entirely within the administrative boundary of the Scottish Borders Council (SBC). The southern element of the Site (around Newcastleton Forest) falls within Newcastleton District Community Council, and the northern element extends over three community council areas: Upper Liddesdale and Hermitage, Southdean and Hobkirk.
- 2.1.2. The neighbouring council ward to the east, within England, is Bellingham, within the administrative boundary of Northumberland County Council, and Longtown to the south within Cumberland Council as can be seen in **Figure 1.5**.
- 2.1.3. A number of Figures accompany this Report in **Appendix A**:
- **Figure 1.1** General Site Location;
 - **Figure 1.2** Scoping Site Boundary;
 - **Figure 1.3.1- 1.3.7** Constraints Plans at Scoping Stage;
 - **Figure 1.4** - Indicative Turbine Layout;
 - **Figure 1.5** Administrative Boundaries;
 - **Figure 5.1a-b** LVIA Study Area and ZTV;
 - **Figure 5.2a-b** Landscape Character;
 - **Figure 5.3a-c** Landscape Planning Designations and Recreational Routes;
 - **Figure 5.4** Topographic Map;
 - **Figure 6.1** Heritage Assets;
 - **Figure 7.1** Vantage Points and Viewsheds: Newcastleton;
 - **Figure 7.2** Vantage Points and Viewsheds: Wauchope East;
 - **Figure 7.3** Vantage Points and Viewsheds: Wauchope West;
 - **Figure 7.4** Ornithology Survey Areas; and
 - **Figure 7.5** Designated Sites.

- 2.1.4. The majority of the Site comprises commercial forestry within the Wauchope Forest and Newcastleton Forest. The eastern edge of the two forests run along the border between Scotland and England. Wauchope Forest is a large, planted forest located to the south of Hawick and north of Kielder, largely made up of coniferous plantation (Sitka spruce). The B6357 between Cleuch Head and Newcastleton runs through the centre of the Site. The A68 is located to the east and the A7 is located to the west. Newcastleton Forest is located to the south of Wauchope. Langholm is located to the west of the Site. The B6357 runs along the north west boundary of the Site, Kershope Forest is located to the south. The wider forested areas of Redesdale, Kielder and Wark Forests are located to the east and south east.
- 2.1.5. On 1 April 2019 new Scottish Government agencies were formed to take forward the work previously undertaken by Forestry Commission Scotland and Forest Enterprise Scotland along with the new responsibilities gained following the full devolution of forestry to Scotland. Both Wauchope and Newcastleton wider forests are now controlled by Forestry Land Scotland (FLS).
- 2.1.6. Kielder Observatory lies 5 kilometres (km) to the south east of the Site, and the Ministry of Defence's seismological monitoring centre at Eskdalemuir lies 27km to the west (of the site boundary). The Site is located approximately 48km from Carlisle Airport, 96km from Newcastle Airport, and 104km from Edinburgh Airport.
- 2.1.7. The Whitelee Moor National Nature Reserve (NNR) and Kielderhead NNR are located to the east of the Site together with the Border Mires¹ and Kielder-Butterburn Special Area of Conservation (SAC).
- 2.1.8. Various watercourses, generally to the north, form part of the River Tweed SAC, although tributaries extend into the Site at multiple locations and some may contain important habitat, such as fish spawning grounds, which may effectively be considered by consultees to be an integral part of the SAC.
- 2.1.9. There are two sections of the Borders Woods SAC, which lie within and adjacent to the Site boundary to the north. The Langholm-Newcastleton Hills Special Protection Area (SPA) is located 3km to the west. There are a number of Sites of Special Scientific Interest (SSSI) within 10km of the Site - these are presented in **Section 8.2.8**.
- 2.1.10. There are a number of Scheduled Ancient Monuments (SAMs) and Listed Buildings located within the surrounding area. There is a Conservation Area at Newcastleton. The area is used by walkers, with tourist spots located throughout the area.
- 2.1.11. There are 9 Special Landscape Areas (SLA's) within the Scottish Borders, the closest being Cheviot Hills on the border 0.9km to the north east of the Site and Teviot Valley 3.5km to the north of the Site.

2.2 THE CUMULATIVE WIND FARM ENVIRONMENT

- 2.2.1. SBC has extensive wind resource potential across the region. Most of the wind farms in the Scottish Borders lie to the north of the region in and around the Lammermuir Hills and eastwards. The closest wind farm to the Site is Pines Burns near Hawick, a 12-turbine scheme rejected by Scottish Borders Council on landscape grounds but consented on appeal by the Scottish Government in 2017.

¹ Border Mires is a collection of peat bog sites in and adjacent to Kielder Forest, of which there are 58 separate sites. The majority are owned by Forest Enterprise and managed by a group of partners including Northumberland Wildlife Trust.

2.2.2. Nearby wind farm development is illustrated on **Figure 5.1a-b: LVIA Study Area and ZTV**.

2.3 HISTORIC AND CURRENT SITE USES

2.3.1. The Site is owned by one landowner (FLS) and mainly comprises commercial forestry.

2.4 DESCRIPTION OF DEVELOPMENT

2.4.1. The Proposed Development would comprise generating capacity in excess of 50MW, and a grid connection of 400MW has been secured, connecting into Harker substation at Carlisle. The Proposed Development would comprise of the following main elements:

- Up to 80 wind turbines with tip heights up to 250m;
- New and upgraded access tracks connecting infrastructure elements;
- Hardstanding areas e.g., crane pads and laydown areas;
- Borrow pits;
- Three anemometer masts;
- Two temporary construction compounds;
- Solar Panels;
- Battery Storage; and
- Two control buildings and substations and associated electrical cabling.

2.4.2. Whilst a detailed turbine layout has yet to be developed, an indicative layout is included within the Scoping Report which sets out the maximum parameters for the Proposed Development. This layout assumes that 16 turbines would be located to the west of the B6357, 34 turbines would be located to the east within Wauchope Forest, and 30 turbines located within Newcastleton Forest. The general areas for turbine locations are set out in **Figure 1.4 Indicative Turbine Layout**.

2.4.3. It is also assumed that a forestry management plan would be required, and keyhole felling may be the most appropriate approach pending detailed site assessment. Off-site reforestation would likely be required together with appropriate replanting of either like for like or more appropriate tree species, in line with the wider aspirations to maintain trails and visitor facilities and conserve habitats, wildlife and archaeological treasures.

3 EIA PROCESS AND CONSULTATION

3.1 EIA OVERVIEW

- 3.1.1. EIA is a systematic process that must be followed for certain categories of project before they can receive a development consent. It aims to identify a project's likely significant effects through the scoping process, and then assess those effects in an EIA Report. This helps to ensure that the importance of the predicted effects, and the scope for mitigation measures to reduce them, are properly understood by the public and, in this instance, the Scottish Ministers before they make their decision.
- 3.1.2. The EIA process should be systematic, analytical, impartial, consultative and iterative, allowing opportunities for environmental concerns to be addressed in the design of a project. Typically, a number of design iterations take place in response to environmental constraints identified during the EIA process prior to the final design being reached.
- 3.1.3. The EIA should be based upon recognised good practice and guidelines specific to each technical area and identify the likely significant environmental effects arising from a proposed development. Consultees are also encouraged to provide confirmation of agreement to the proposed scope in terms of what is included and excluded, the methodology, and the receptors identified.

3.2 EIA TERMINOLOGY

IMPACTS AND EFFECTS

- 3.2.1. EIA is concerned with the identification of likely significant effects on the environment. However, the terms *impact* and *effect* are often used synonymously, and this can lead to confusion. For clarity, the convention used in this assessment is to use 'impacts' within the context of the term EIA, which describes the process from scoping through EIA Report preparation to subsequent monitoring and other work. Otherwise, this document uses the word 'effects' when describing the environmental consequences of the Proposed Development. For example, such effects may come about as a result of the following:
- Physical activities that would take place if the development were to proceed (e.g., vehicle movements during construction operations);
 - Environmental changes that are predicted to occur as a result of these activities (e.g., loss of vegetation prior to the start of construction work or an increase in noise levels). In some cases, one change causes another change, which in turn results in an environmental effect.
- 3.2.2. The predicted environmental effects are the consequences of the environmental changes for specific environmental receptors. For example, with respect to bats, the loss of roosting sites or foraging areas could affect the bats' population size; with regard to people, an increase in noise levels could affect amenity.
- 3.2.3. This assessment is concerned with assessing the significance of the environmental effects of the Proposed Development, rather than the activities or changes that cause them. However, this requires these activities to be understood and the resultant changes identified; often based on predictive assessment work.

TYPE OF EFFECT

- 3.2.4. The 2017 EIA Regulations (Schedule 4, Part 5) require consideration of a variety of types of effect, namely direct and indirect, secondary, cumulative, positive and negative, short, medium and long-term, and permanent and temporary. In the EIA Report that is proposed to follow this Scoping Report, effects are considered in terms of how they arise, their nature (i.e., whether they are positive or negative) and the duration. Each would have a source originating from the Proposed Development, a pathway and a receptor and may fall into one of several categories:
- **Direct effects** are readily identified because of the physical connection between some element of the development and an affected receptor;
 - **Indirect effects** require some additional pathway for the effect to arise. For example, a listed building may not be directly affected by any elements of a development, but its setting may be if the development is visible in views from it or when looking towards it; in which case there would be an indirect effect;
 - **Secondary effects** would typically require further pathway connections, for example, an effect on a receptor population (A) could have a secondary effect on receptor population B, if B was itself dependent on A in some way, as, for example, a food source; and
 - **Cumulative effects** arise when the receptors affected by one development are also affected by other developments resulting in the aggregation of environmental effects or the interaction of impacts.
- 3.2.5. Most predicted effects would be obviously positive or negative and would be described as such. However, in some cases it is appropriate to identify that the interpretation of a change is a matter of personal opinion, and such effects would be described as 'subjective'.

TEMPORAL AND SPATIAL SCOPE

- 3.2.6. In its broadest sense, the spatial scope is the area over which changes to the environment would occur as a consequence of a development. In practice, an EIA should focus on those areas where these effects are likely to be significant.
- 3.2.7. The spatial scope varies between environmental topic areas. For example, the effect of a development on the landscape resource and visual amenity is generally assessed within a zone of up to 35km from the wind turbines (and potentially up to 70km for cumulative effects), whilst noise effects are assessed within a much smaller area encompassing those representative properties close to a development site.
- 3.2.8. The temporal scope is stated where known and effects are typically described as:
- Temporary – likely to be related to a particular activity and would cease when the activity finishes. The terms 'short-term' and 'long-term' may also be used to provide a further indication of how long the effect would be experienced; and
 - Permanent – this typically means an unrecoverable change.
- 3.2.9. Effects are generally considered in relation to the following key stages of a proposed development:

- **Construction** effects may arise from the construction activities themselves, or from the temporary occupation of land. Effects are often of limited duration although there is potential for permanent effects. Where construction activities create permanent change, the effects would continue into the operational period;
- **Operational** effects may be permanent, or they may be temporary, intermittent, or limited to the life of a proposed development until decommissioning (as in the case of wind power developments which gain planning permission for a defined and finite number of years); and
- **Decommissioning** effects may arise from the decommissioning activities themselves, or from the temporary occupation of land. The effects would generally be temporary and of limited duration. Additional permanent change would normally be unlikely unless associated with restoration.

DEFINING SIGNIFICANCE

- 3.2.10. Development proposals affect different environmental elements to varying degrees and not all of these are of sufficient concern to warrant detailed investigation or assessment within the EIA process. The EIA Regulations identify those environmental resources that warrant investigation as those that are “likely to be significantly affected by the development” (Schedule 4(4)).
- 3.2.11. The EIA Regulations themselves do not define significance and it is therefore necessary to state how this would be defined for the EIA. Conclusions about significance of effects are derived with reference to available information about the nature of the development proposal, the environmental receptors (or ‘receiving environment’) and with reference to prediction about the potential changes that a proposed development would cause.
- 3.2.12. In each of the environmental topic chapters, professional judgement is used in combination with relevant guidance to assess the interaction of the receptor’s ‘sensitivity’ (this may be defined in terms of importance, value, rarity, quality) against the predicted magnitude of change to identify a level of effect. **Table 3-1** provides a general indication of how receptor sensitivity and magnitude of change can be combined to establish the level of effect.
- 3.2.13. Note however that the categorisation illustrated in **Table 3-1** provides a guide only and may be moderated by the specialist that undertakes the assessment in accordance with professional judgement and experience. In particular, the divisions between categories of receptor sensitivity, magnitude of change, and level of effect should not be interpreted as definitive, and the lines that represent the boundaries between categories should in many cases be considered as ‘blurred’. In some cases, the judgement can be guided by quantitative values, whilst in other cases qualitative descriptions are used. The significance of the effect may also need to be qualified with respect to the scale over which it may apply (e.g., local, regional, national and international). There are also specific variations for some topics, for example noise where the assessment establishes whether a proposed development would meet or exceed limit values defined by the relevant guidance methodology, rather than establishing whether a significant effect would occur. Any such variation is described within the individual technical chapters in this scoping report.

Table 3-1 - Guide to Establishing the Level of Effect

Importance or Sensitivity of Receptor					
		HIGH	MEDIUM	LOW	NEGLIGIBLE
Magnitude of Change	LARGE	Very substantial or substantial	Substantial / moderate	Moderate / slight	Negligible / no effect
	MEDIUM	Substantial / moderate	Moderate	Slight	Negligible / no effect
	SMALL	Moderate / slight	Slight	Slight / negligible	Negligible / no effect
	NEGLIGIBLE	Negligible / no effect	Negligible / no effect	Negligible / no effect	Negligible / no effect
	Key		Significant in terms of the EIA Regulations		
		Not significant in terms of the EIA Regulations			

- 3.2.14. In its simplest form, the outcome of the assessment of a given effect on a particular receptor would be a determination that it is either significant or not significant. However, there may be instances where it is appropriate to further sub-divide the category of ‘not significant’: for example, by the use of the terms ‘slight’ and ‘negligible’ in terms of the level of effect. The use of the category of ‘slight’ may for example be used in acknowledgement that there are instances whereby there may be an effect, albeit that this is not likely to be significant. This approach may better facilitate assessment of cumulative effects, where cumulatively several slight effects could be significant. While in general, environmental effects are categorised as substantial, moderate, slight, negligible or no effect; specific technical assessment may deviate from this, though this would be explained in the relevant methodology section.
- 3.2.15. Having defined a level of effect, professional judgement in combination with guidance and standards are then applied to identify which of those levels of effect are then considered to be equivalent to significant effects in terms of the EIA Regulations. For some of the topics that would be assessed in the EIA Report that would follow this Scoping Report, there is published guidance about significance evaluation and, where such topic-specific guidance exists, it would be used to inform the development of the significance evaluation methodologies. For other topics, a level of effect of substantial or moderate / substantial is generally of most importance to the decision-maker and so these effects are considered significant in terms of the EIA Regulations. Where the level of effect is considered to be moderate or less, these are generally not deemed significant in terms of the EIA Regulations. However, depending on the receptor being considered, it is possible that some potentially moderate effects could be judged as significant in terms of the EIA Regulations, and where this is considered to be the case, the rationale for this conclusion would be provided in the technical assessments.

3.3 EIA SCOPING

3.3.1. The results of the EIA process are reported in an EIA Report and Schedule 4(4) of the EIA Regulations specifies that it should describe:

“... the factors... likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydro morphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape.”

3.3.2. Regulation 4(2) of the EIA Regulations requires the interaction between these factors to be considered. In addition, Regulation 4(4) requires EIA Reports to consider:

“... the expected effects deriving from the vulnerability of the development to risks, so far as relevant to the development, of major accidents and disasters.”

3.3.3. Establishing which aspects of the environment are likely to be significantly affected by a particular project is captured in the EIA scoping process, which aims to identify those aspects of the environment and associated issues that need to be considered when assessing the potential effects resulting from a proposed development. This recognises that there may be some environmental elements for which the project is unlikely to have a significant effect and hence where there is no need for further investigation to be undertaken as part of the EIA.

3.3.4. The proposed scope of the EIA for this Proposed Development with respect to the relevant policy and environmental topics is set out in **Chapters 4 to 16** of this Report and comprises:

- Chapter 4: Legislation, Energy Policy and Planning Policy Context;
- Chapter 5: Landscape and Visual;
- Chapter 6: Cultural Heritage;
- Chapter 7: Ornithology;
- Chapter 8: Ecology (including peat);
- Chapter 9: Forestry;
- Chapter 10: Geology, Hydrology and Hydrogeology;
- Chapter 11: Carbon Balance;
- Chapter 12: Traffic and Transport;
- Chapter 13: Noise and Vibration;
- Chapter 14: Socio-economics, Tourism and Recreation; and
- Chapter 15: Telecommunications, Aviation and other considerations.

3.3.5. The scope and assessment methodologies proposed in this Scoping Report are based on recognised good practice and guidelines specific to each topic area. Baseline conditions have been determined through desk-based studies and survey work undertaken to date. The environmental topic chapters identify where significant effects are anticipated as a result of the Proposed Development and take into account:

- The baseline data;
- The description of the Proposed Development;
- Relevant guidance on assessment methodologies; and
- Any cumulative effects, which may arise.

3.4 CUMULATIVE EFFECTS

3.4.1. Cumulative effects can arise from the interaction between a proposed development and other developments already built or proposed. In line with standard practice, for the purpose of the EIA, other wind farm developments which are operational, have a consent or are the subject of a live and validated application would be included in the consideration of potential cumulative effects (subject to a cut-off point to allow assessments to be undertaken (usually around 12 weeks before submission of the application). It should be noted that not all of the cumulative developments would necessarily have a cumulative effect in respect of any particular environmental topic.

3.5 MITIGATION

3.5.1. Some mitigation measures to avoid, reduce or offset the consequences of the Proposed Development would be embedded within its design whilst others may require adherence to particular constraints on construction methodology or mode of operation. The final assessment of significance would take into account the mitigation measures and constraints that have been incorporated into the Proposed Development (i.e., it would be the assessment of residual effects).

3.5.2. It is likely that the following draft management plans would be submitted as part of the EIA:

- Construction Environmental Management Plan (CEMP);
- Habitat Management Plan (HMP) and Species Protection Plan (SPP);
- Peat Management Plan (PMP); and
- Construction Traffic Management Plan (CTMP).

3.6 EIA METHODOLOGY

3.6.1. The EIA Report would identify the assessment methodologies, based on recognised good practice and guidelines specific to each of the relevant environmental topic areas where the Proposed Development could result in significant effects. In general terms, the technical studies undertaken for each topic area and chapter included in the EIA Report to accompany the application would include:

- Collection and collation of existing baseline information about the receiving environment and surveys to fill any gaps in knowledge or to update any historic information, together with identification or any relevant trends in, or evolution of, the baseline;
- Consultation with experts and relevant consultees as necessary;
- Consideration of the potential effects of the Proposed Development on the baseline, followed by identification of any additional mitigation measures to seek to avoid or reduce any predicted adverse effects;
- Assessment and evaluation of any residual significant effects after mitigation measures have been implemented; and
- Compilation of the EIA Report chapter.

3.7 CONSULTATION

- 3.7.1. Consultation is a regulatory and essential element of the EIA process and would be reported within the EIA Report and within a supporting Consultation Report.
- 3.7.2. The Applicant is committed to promoting dialogue with statutory and non-statutory consultees and the local community, seeking to engage with all those with an interest in the Proposed Development to provide transparency during the process.
- 3.7.3. Prior to submission of the Scoping Report, the following stakeholders would be notified in writing:
- Community Councils in the area: Newcastleton and District Community Council, Upper Liddesdale and Hermitage Community Council, Southdean Community Council, Hobkirk Community Council and Hawick Community Council.
 - Neighbouring Councils on the English side of the border including Kielder Parish, Bellingham Parish and Longtown;
 - A newsletter would be provided for local residents within 8km of the Site, including settlements close to the 8km boundary;
 - Regional Members of Scottish Parliament (MSPs):
 - Sharon Dowey MSP (Scottish Conservative and Unionist Party);
 - Emma Harper MSP (Scottish National Party);
 - Craig Hoy MSP (Scottish Conservative and Unionist Party);
 - Carol Mochan MSP (Scottish Labour);
 - Colin Smyth MSP (Scottish Labour);
 - Martin Whitfield MSP (Scottish Labour); and
 - Brian Whittle MSP (Scottish Conservative and Unionist Party).
 - Northumberland stakeholders
 - Northumberland County's Councillor John Riddle; and
 - Guy Opperman MP.
- 3.7.4. Soon after the submission of the Scoping Report, it is expected that at least two community consultation events would take place during the EIA Process to seek information and inform local communities of the Proposed Development. It is proposed that the initial events would take place towards the end of August 2023, and in early September 2023 in local villages within Scottish Borders and Kielder, as follows:
- Kielder Primary School;
 - Newcastleton Village Hall; and
 - Southdean Village Hall.
- 3.7.5. In addition to the consultation requirements at scoping, ongoing engagement would take place with key consultees who express an interest in the Proposed Development. This would take place on an information exchange basis, and the Applicant would actively seek input from consultees to help

inform the iterative design process, as well as assist in providing technical input to relevant topic areas.

- 3.7.6. A website has been set up for the Liddesdale Wind Farm as an information point which would be kept up to date with the latest information, www.edf-re.uk/our-sites/liddesdale and in addition an email address is available for comments to go directly to the project team: liddesdalewindfarm@edf-re.uk
- 3.7.7. In addition to the website, and the in person community consultation events, a virtual exhibition would be available for people to peruse in their own time, at least two weeks before the community consultation events.
- 3.7.8. EDF-R would be in attendance at local events in the surrounding area where possible. At present, EDF-R are planning to attend the Borders Union Show on 28 and 29 July 2023, in order to provide general company information as well as information about their renewable projects proposed in the local area.

4 LEGISLATION, ENERGY POLICY AND PLANNING POLICY CONTEXT

4.1 INTRODUCTION

- 4.1.1. This chapter of the EIA Report would detail the legislative planning context, and identify and interpret relevant national legislation, policies and strategies in relation to renewable energy and planning.
- 4.1.2. The Section 36 application would be accompanied by a Planning Statement, which would set out the planning case for the Proposed Development with regards to national and local policies and other material considerations. There are legal, policy and advice documents which would be relevant considerations in the determination of the Section 36 application for the Proposed Development, including those noted in the following sections.

4.2 REGULATORY FRAMEWORK

THE ELECTRICITY ACT 1989

- 4.2.1. The application for the Proposed Development would be made pursuant to Section 36 of the Electricity Act 1989 (as amended), as a generating station with capacity exceeding 50MW. The Act requires that a generating station with a capacity exceeding 50MW is not constructed, extended, or operated except in accordance with a consent granted by the Scottish Ministers.
- 4.2.2. The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (“the EIA Regulations”) apply to applications under Section 36 and 37 of the Electricity Act and sets out the legislative requirements of the EIA process.
- 4.2.3. The Proposed Development falls under Schedule 2 of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the “EIA Regulations”) as a generating station (Schedule 2(1)). A Schedule 2 development constitutes EIA development if it is likely to have significant effects on the environment by virtue of factors such as its nature, size or location as set out in Schedule 3 of the EIA Regulations.

THE TOWN AND COUNTRY PLANNING (SCOTLAND) ACT 1997 AS AMENDED

- 4.2.4. The principal planning statute is the Town and Country Planning (Scotland) Act 1997 as amended. Section 57(2) states that on grant of a consent under Section 36 of the Electricity Act 1989, “*Scottish Ministers may give a direction for planning permission to be deemed to be granted, subject to such conditions (if any) as may be specified in the direction, for – (a) so much of the operation or change of use to which the consent relates as constitutes development; (b) any development ancillary to the operational change of use to which the consent relates*”.
- 4.2.5. Section 25 of the Town and Country Planning (Scotland) Act 1997 is not engaged for applications pursuant to section 36 of the Electricity Act 1989 (i.e., the development plan does not take primacy in the determination process). In considering the overall legal framework within which the Proposed Development would be assessed, however, the Development Plan is considered a material consideration that may be taken into account by Scottish Ministers in the determination of this application.

4.3 RENEWABLE ENERGY POLICY CONTEXT

- 4.3.1. Renewable energy is key to the combatting of climate change and therefore national and international policy that relates to combatting climate change and/or renewable energy have been identified where relevant.

INTERNATIONAL CONTEXT

The Kyoto Protocol 1997²

- 4.3.2. The Kyoto Protocol sought to bind countries to limiting and then reducing the quantity of their greenhouse gases produced. The United Kingdom (UK) signed up to the Kyoto Protocol binding itself to ensuring it reduces its greenhouse gases produced to being 12.5 percent below base-year levels (1990 levels) at the end of the first commitment period (2008-2012)³. Whilst the Kyoto Protocol and its commitments are old, it demonstrates the UK's commitment to meeting and exceeding international greenhouse gas reduction targets and renewable energy is key to achieving such targets.

The Paris Agreement 2015⁴

- 4.3.3. There is now a well-recognised and growing concern globally regarding climate change and the risks it poses to habitats and the human way of life. The Conference of the Parties (COP) 21 Paris Agreement (2015) represented an international undertaking to limit the effects of climate change between 195 countries. The UK signed the Agreement in April 2016 to contribute to the plan to limit global warming below 2°C legally binding. The Agreement came into force in November 2016. In addition to the 2°C target there is a commitment to pursue efforts to limit the temperature increase to 1.5°C. Making the UK's energy sector more sustainable and producing less greenhouse gases is key to its ambitions to achieving the Paris Agreement and helping to limit global temperature rises.

UN's Conference of Parties climate summit⁵

- 4.3.4. Glasgow hosted the UN's Conference of Parties climate summit ('COP26') summit in November 2021 which set out clear milestones for the next steps in the UK's emission targets climate adaptations, as well as to push forward the wider international commitments. COP26 finalised the Paris Agreement with nearly 200 countries signing up to the Glasgow Climate Pact. This committed to the 1.5°C target and resolved a number of important outstanding elements of the Paris Agreement. The use of renewable energy to address the UK's electricity supply is key to ensure it meets its continually growing international greenhouse gas reduction commitment targets.

² United Nations (1997) The Kyoto Protocol. Available at: https://unfccc.int/kyoto_protocol#:~:text=In%20short%2C%20the%20Kyoto%20Protocol,accordance%20with%20agre ed%20individual%20targets. [Accessed March 2023].

³ DEFRA (no date) The United Kingdom's Report on Demonstrable Progress under the Kyoto Protocol. Available at: <https://unfccc.int/resource/docs/dpr/uk1.pdf> [Accessed March 2023]. Page 6.

⁴ United Nations (2015) The Paris Agreement 2015. Available at: <https://unfccc.int/process-and-meetings/the-paris-agreement> [Accessed March 2023].

⁵ United Nations (2021) Conference of Parties Climate Summit 2021 'COP26'. Available at: <https://ukcop26.org/> [Accessed March 2023].

UK ENERGY POLICY

- 4.3.5. The UK government is committed to meeting its various climate change and greenhouse gas related commitments, ensuring it reduces its contribution to these issues. This is demonstrated by the policy documents below.

Net Zero – The UK’s Contribution to Stopping Global Warming 2019⁶

- 4.3.6. This report sets out a number of key findings including: the Committee on Climate Change (CCC) recommendation of a new emissions target for the UK: net-zero greenhouse gases by 2050 (acted upon by The Climate Change Act 2008 (2050 Target Amendment) Order 2019); In Scotland, the CCC recommends a net-zero date of 2045, reflecting Scotland’s greater relative capacity to remove emissions than the UK as a whole (acted upon by the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019).

The Sixth Carbon Budget, December 2020⁷

- 4.3.7. The budget sets out the CCC’s recommendations for the UK’s path to Net Zero in 2050. It requires a 78% reduction in UK territorial emissions between 1990 and 2035. This brings forward the previous 80% target by 15 years. It sets out the goal of legislating for the Budget as soon as possible being the strongest statement of the ambition to tackle climate change. Within the electricity generation paper which accompanies the budget, the CCC notes that all net zero scenarios see new onshore wind generation being deployed by 2050 and doubles the onshore wind capacity in the UK to 25-30GW in all net zero scenarios.

Powering Up Britain – March 2023 Energy Security Secretary Statements⁸

- 4.3.8. On 30th March 2023, the UK Government announced a commitment and drive to improve the energy market and energy security within Britain. The Energy Secretary identified billions of pounds of additional funding would be provided to the industry in order to develop and implement more green energy development. The fifth round of Contracts for Difference has a budget of £205 million to directly provide support for the development of renewable energy within Britain.
- 4.3.9. The main Powering Up Britain document identified that onshore wind should be recognised in planning as an efficient, cheap and widely supported technology⁹.

⁶ Climate Change Committee (2019) Net Zero – The UK’s contribution to stopping global warming. Available at: <https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/> [Accessed March 2023].

⁷ Climate Change Committee (2020) Sixth Carbon Budget. Available at: <https://www.theccc.org.uk/publication/sixth-carbon-budget/> [Accessed March 2023].

⁸ HM Government (2023) Shapps sets out plans to drive multi billion pound investment in energy revolution. Available at: [Shapps sets out plans to drive multi billion pound investment in energy revolution - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/news/shapps-sets-out-plans-to-drive-multi-billion-pound-investment-in-energy-revolution) [accessed April 2023].

⁹ Hm Government (2023) Powering Up Britain. Available at: [Powering Up Britain - Joint Overview \(publishing.service.gov.uk\)](https://publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1184447/powering-up-britain-joint-overview.pdf) [Accessed April 2023]. Page 23.

Overarching National Policy Statement for Energy (EN-1)¹⁰

- 4.3.10. Released in March 2023, the Overarching National Policy Statement for Energy identifies the importance of improving the reliability and security of UK energy supply, especially in light of recent energy price fluctuations due to actions by foreign entities. It also identifies a need for more renewable energy to be developed in order for current net zero goals to be achieved and for the energy industry to become decarbonised. The Statement provides guidance on how large scale energy developments should consider their potential effects on a wider range of topics, such as socio-economic effects and landscapes. Whilst it is recognised that Scotland has devolved planning power, Section 1.4.2 of the NPS states: *“In Scotland and in those areas of the REZ where Scottish Ministers have functions, the Secretary of State would have no functions under the Planning Act 2008 in relation to consenting energy infrastructure projects except as set out in this section. However, energy policy is generally a matter reserved to UK Ministers and this NPS may therefore be a relevant consideration in planning decisions in Wales and Scotland.”*
- 4.3.11. The UK Government has identified a need for greater support for onshore network infrastructure to better transfer electricity from generating stations around the UK (page 32).

National Policy Statement for Renewable Energy Infrastructure (EN-3)¹¹

- 4.3.12. Released in March 2023, this Statement reaffirms the UK’s need for more renewable energy development of a large scale, similar to Statement EN-1 above. Of note, paragraph 2.4.5 states: *“However, energy policy is generally a matter reserved to UK Ministers and this NPS may therefore be a relevant consideration in planning decisions in Wales and Scotland”.*
- 4.3.13. NPS EN-3 covers the following types of nationally significant renewable electricity generating stations:
- *Energy from biomass and/or waste including mixed waste containing non-renewable fractions (>50 MW in England and >350MW in Wales);*
 - *Pumped hydro storage (>50 MW in England and >350MW in Wales);*
 - *Solar photovoltaic (PV) (>50 MW in England and >350MW in Wales);*
 - *Offshore wind (>100MW in England and >350MW in Wales); and*
- 4.3.14. *Tidal stream (>100MW in England and >350MW in Wales). (page 6)*
NPS EN-3 identifies the need for large scale renewable energy development that considers its potential effects on environmental elements, such as designated sites and heritage assets in order to be in accordance with the UK’s Environmental Improvement Plan. (page 9).

¹⁰ HM Government (2023) Overarching National Policy Statement for Energy (EN-1). Available at: [EN-1 Overarching National Policy Statement for Energy \(publishing.service.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/114421/EN-1_Overarching_National_Policy_Statement_for_Energy.pdf) [Accessed April 2023].

¹¹ HM Government (2023) National Policy Statement for Renewable energy Infrastructure (EN-3). Available at: [NPS EN-3 - Renewable energy infrastructure \(publishing.service.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/114421/NPS_EN-3_Renewable_energy_infrastructure.pdf) [Accessed April 2023].

Carbon Budget Delivery Plan (March 2023)¹²

- 4.3.15. The Carbon Budget Delivery Plan 2023 has been designed and adopted to aid in the achievement of the goals contained within the UK’s Sixth Carbon Budget (see **Section 4.3.7**). The Delivery Plan estimates that currently the UK would not be able to meet the requirements of the Sixth Carbon Budget, barely missing its target by 3% (reaching 97% of the required carbon savings by 2037) (page 15). However, the Delivery Plan highlights the need for continued research into low-carbon technologies and their use to enable the Sixth Carbon Budget to be met and exceeded and the Delivery Plan is confident such technologies would ensure the achievement of the Sixth Carbon Budget’s requirements in reality. (page 15-16)
- 4.3.16. Onshore wind is identified as one of the key technologies that are helping the UK meet the requirements of the Carbon Budgets. Part of the Delivery Plan’s advice is for the UK to establish local partnerships that can develop onshore wind farm development.
- 4.3.17. The Delivery Plan identifies onshore wind as an efficient, cheap, and widely supported technology (page 49). The Delivery Plan also identifies that establishing energy connections to renewable energy development (including onshore wind) should be made easier, to help provide assurance and savings to energy development developers.

Powering Up Britain – The Net Zero Growth Plan¹³

- 4.3.18. Released in March 2023, the Net Zero Growth Plan seeks to reduce emissions across the economy of the UK and support the transition of its economy to being net zero, whilst maintaining economic growth.
- 4.3.19. The Net Zero Growth Plan states the following with regard to the future of the UK’s energy sector, “*A secure, reliable, cost-effective, decarbonised power sector is critical for a modern industrial economy.*” (page 26)
- 4.3.20. Demand for renewable energy is only going to increase in the future as the Net Zero Growth Strategy identifies that the demand for energy is likely to increase by up to 60% by 2035, making it harder to achieve decarbonisation goals. (page 27)
- 4.3.21. The Net Zero Growth Plan reiterates the statement that onshore wind is an efficient, cheap and widely supported technology. (page 27)

SCOTTISH ENERGY POLICY

- 4.3.22. Notwithstanding the targets that Scotland is bound to from UN targets the UK signed up to, Scotland has established its own ambitious requirements for addressing its contribution to climate change and greenhouse gas production, as demonstrated by the documents identified below.

¹² HM Government (2023) Carbon Budget Delivery Plan. Available at: [Carbon Budget Delivery Plan \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/114121/carbon-budget-delivery-plan-2023.pdf) [Accessed April 2023].

¹³ HM Government (2023) Powering Up Britain – The Net Zero Growth Plan. Available at: [Powering Up Britain - The Net Zero Growth Plan \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/114121/powering-up-britain-the-net-zero-growth-plan.pdf) [Accessed April 2023].

Scottish Energy Strategy (2017)¹⁴

- 4.3.23. This sets targets for the energy system up to 2030. It builds on the targets set out in the 2020 Routemap for Renewable Energy in Scotland 2011 which was an extension and update of the Scottish Renewables Action Plan 2009. The Strategy sets out the following two targets:
- *‘The equivalent of 50% of the energy for Scotland’s heat, transport and electricity consumption to be supplied from renewable sources.*
 - *An increase by 30% in the productivity of energy use across the Scottish economy.”* (page 6)
- 4.3.24. This target would be largely dependent on onshore wind to deliver.

Scottish Onshore Wind Energy Policy Statement (OWPS) 2022¹⁵

- 4.3.25. The draft OWPS 2021 set out the critical role of onshore wind in meeting the energy targets. It identifies the ambition that an additional 8-12 GW of onshore wind be installed by 2030. The final OWPS was published in December 2022 and refers to the Climate Change Plan Update and RenewableUK ‘Onshore Wind Industry Prospectus’ which sets out the need for Scotland to develop an additional 12GW of onshore wind capacity. The Climate Change Committee (CCC) developed four exploratory scenarios for emissions to 2050. These estimate that, in every scenario, the UK would require a total of 25-30GW of installed onshore wind capacity by 2050 to meet government targets. This is at least doubling the current UK installed capacity (13.7GW in 2019).
- 4.3.26. In line with this commitment, and reflecting the natural life cycles of existing windfarms, The OWPS sets a new ambition for the deployment of onshore wind in Scotland, this is minimum installed capacity of 20GW of onshore wind in Scotland by 2030.

Scotland’s Draft Energy Strategy and Just Transition Plan (2023)¹⁶

- 4.3.27. On January 10th, 2023, a route map to secure Scotland’s fastest possible fair and just transition away from fossil fuels was published for consultation. The plan sets out Scotland’s renewables revolution to be accelerated as North Sea basin resources decline which would result in a net jobs gain across the energy production sector, with the potential to increase renewable energy exports and reduce exposure to future global energy market fluctuations.
- 4.3.28. Key policy proposals published for consultation include substantially increasing the current level of 13.7GW of renewable electricity generation capacity, with an additional 20GW by 2030, which could produce the equivalent of nearly 50% of current demand an ambition for 5GW of renewable and low-carbon hydrogen power by 2030, and 25GW by 2045.

¹⁴ Scottish Government (2017) Scottish Energy Strategy 2017. Available at: <https://www.gov.scot/publications/scottish-energy-strategy-future-energy-scotland-9781788515276/> [Accessed March 2023].

¹⁵ Scottish Government (2022) Scottish Onshore Wind Energy Policy Statement 2022. Available at: <https://www.gov.scot/publications/onshore-wind-policy-statement-2022/#:~:text=Sets%20out%20our%20ambition%20to,an%20onshore%20wind%20sector%20deal.> [Accessed March 2023].

¹⁶ Scottish Government (2023) Scotland’s Energy Strategy and Just Transition Plan. Available at: <https://www.gov.scot/publications/draft-energy-strategy-transition-plan/documents/> [Accessed March 2023].

- 4.3.29. In relation to onshore wind the draft Strategy reflects the fact the national policy has just been published and would not change. For onshore wind the strategy provides further support to the removal of barriers to deployment and supports the work set on in the OWPS relative to maximising the economic benefits deriving from the sector and enhanced opportunities to support communities. This is further enforced by the draft Strategy through it seeking to support Scotland's existing energy sector and manufacturing supply chain and identified that renewable energy is well placed to help support employment opportunities.

The Climate Change Plan 2018-2032 (updated 2021)¹⁷

- 4.3.30. The Plan which sets out Scotland's strategy to meet emission reduction targets between 2018 and 2032. By 2032, Scotland's electricity system would supply a growing share of Scotland's energy needs and by 2030, 50% of all Scotland's energy needs across heat, transport and electricity would come from renewables. By 2032, Scotland's electricity system would be largely decarbonised and be increasingly important as a power source for heat and transport.

Climate Emergency: Scotland (2019)¹⁸

- 4.3.31. In response to the declaration of the Climate Emergency, the Scottish Government identified the ambitious new target to reduce emissions and become net zero by 2045. The decarbonisation of Scotland's energy sector is key to achieving such ambitious targets and on-shore wind is well placed to assist in making such targets achievable.

Climate Change (Emissions Reduction Targets) (Scotland) Act 2019¹⁹

- 4.3.32. The Act responds directly to the Paris Agreement and other policies and commitments set out above by amending the Climate Change (Scotland) Act 2009 and setting a legally binding Net Zero target for Scotland to be achieved by 2045, five years ahead of UK requirement. It sets out interim targets where 'The Scottish Ministers must ensure that the net Scottish emissions account for the year:
- 2020 is at least 56% lower than the baseline,
 - 2030 is at least 75% lower than the baseline, and
 - 2040 is at least 90% lower than the baseline.'

¹⁷ Scottish Government (2020) Securing a green recovery on a path to net zero: climate change plan 2018-2032 – update. Accessed March 2023].

¹⁸ Scottish Government (2019) The Global Climate Emergency - Scotland's Response: Climate Change Secretary Roseanna Cunningham's statement. Available at: <https://www.gov.scot/publications/global-climate-emergency-scotlands-response-climate-change-secretary-roseanna-cunninghams-statement/> [Accessed March 2023].

¹⁹ Scottish Government (2019) Climate Change (Emissions Reduction Targets) (Scotland) Act 2019. Available at: <https://www.legislation.gov.uk/asp/2019/15/contents/enacted> [Accessed March 2023].

Reducing emissions in Scotland Progress Report to Parliament Committee on Climate Change October 2020²⁰;

- 4.3.33. The Report recognises how the Scottish Government has taken important steps to ‘embed Net Zero as a core Government policy, framing major fiscal and Parliamentary events around climate change’. The document sets out the net zero emissions and improved climate resilience are integral to the Covid-19 recovery noting that the Scottish Government must take actions to improve resilience by integrating adaption into all Government Policy.

Bute House Agreement²¹

- 4.3.34. In August 2021, the Scottish Government and the Scottish Green Party Parliamentary Group created a shared draft policy programme called the Scottish National Party–Scottish Greens agreement or “the Bute House Agreement” which would see the parties working together to achieve objectives relating to the climate emergency over the next five years. It details commitments to investing at least £1.8 billion over this period in energy efficiency and renewable heating and creating a bigger focus on green jobs.

4.4 PLANNING POLICY

- 4.4.1. As part of the Scoping Opinion previously issued, a request was made to include English Planning Policy in any application going forward. It is clearly acknowledged that when considering the environmental effects of a proposed development, administrative boundaries are not relevant, and therefore technical topic areas would carry out their impact assessment based on any significant effects identified and suggest embedded or additional mitigation where possible, regardless of how far reaching this would be. However, as the Proposed Development is located entirely within the administrative boundary of SBC, the relevant planning policies that must be applied to the site are as set out below.
- 4.4.2. National planning policy is contained within the National Planning Framework 4 (NPF4), which was published 13th February 2023. In addition, national planning policies of potential relevance to specific subjects affected by the Proposed Development are identified alongside numerous Planning Circulars and Advice documents.

NATIONAL PLANNING POLICY

National Planning Framework 4 (NPF4)²²

- 4.4.3. NPF4 was adopted by the Scottish Ministers on 13 February 2023, following approval by the Scottish Parliament in January. This replaces National Planning Framework 3 and Scottish Planning Policy. NPF4 now forms part of the statutory development plan for any area in Scotland.

²⁰ Climate Change Committee (2020) Reducing emissions in Scotland – 2020 Progress Report to Parliament. Available at: <https://www.theccc.org.uk/publication/reducing-emissions-in-scotland-2020-progress-report-to-parliament/> [Accessed March 2023].

²¹ Scottish Government (2021) Agreement with Scottish Green Party. Available at: <https://www.gov.scot/news/agreement-with-scottish-green-party/> [Accessed March 2023].

²² Scottish Government (2023) National Planning Framework 4. Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2023/02/national-planning-framework-4/documents/national-planning-framework-4-revised-draft/national-planning-framework-4-revised-draft/govscot%3Adocument/national-planning-framework-4-revised-draft.pdf> [Accessed March 2023].

- 4.4.4. The Town and Country Planning (Scotland) Act 1997 as amended, directs that the NPF must contribute to a series of six outcomes, including meeting targets for emissions of greenhouse gases. The Framework sets a target of net zero emissions by 2045 and must make significant progress towards this by 2030.
- 4.4.5. NPF4 supports development which helps to meet Scotland’s greenhouse gas emissions targets and states “The global climate emergency and the nature crisis have formed the foundations for the spatial strategy as a whole. The regional priorities share opportunities and challenges for reducing emissions and adapting to the long-term impacts of climate change, in a way which protects and enhances our natural environment (page 8).”
- 4.4.6. NPF4 Annex B sets out statements of need for national development and provides that onshore electricity generation from renewables exceeding 50 megawatts capacity is strategically important, accordingly classifying it as a national development (category 3: *Strategic Renewable Electricity Generation and Transmission Infrastructure*). Inclusion as a national development establishes the general need for renewable projects of strategic scale across Scotland.
- 4.4.7. The relevant policies that apply to the Proposed Development are identified within **Table 4-1** below.

Table 4-1 - National Planning Policy Framework 4 Relevant Policies

Policy Number and Title	Summary of Policy
Policy 1 Tackling the climate and nature crises	Policy 1 requires Local Council’s to give significant weight to the global climate and nature crises that are ongoing and developing. Developments that can help to curb these events and are sustainable should be supported.
Policy 2 Climate mitigation and adaptation	Policy 2 aims to encourage, promote, and facilitate development that minimises emissions and adapts to the current and future impacts of climate change.
Policy 3 Biodiversity	Policy 3 ensures Scotland’s biodiversity assets are protected. Development is required to ensure it would conserve, restore, and enhance local biodiversity. Careful planning, design, siting and mitigation should be utilised to ensure as few adverse effects are generated by development on biodiversity assets. Core to this policy is the need to rebalance: <i>“the planning system in favour of conserving, restoring and enhancing biodiversity and promotes investment in nature-based solutions, benefiting people and nature (page 9)”</i>
Policy 4 Natural places	Policy 4 seeks to protect the designated national and local biodiversity assets and species. Developments that <i>“by virtue of type, location or scale will have an unacceptable impact on the natural environment, will not be supported”</i> . (Page 40).
Policy 5 Soils	Policy 5 protects Scotland’s soil resources from development. Development for renewable energy development is permissible, even on prime agricultural land, if sufficient restoration would be provided. Furthermore, such development should minimise the amount of land taken through its design and layout to minimise even just temporary losses. Development in areas of peatland/carbon-rich soils will be required to carry out detailed site specific assessment that identify:

Policy Number and Title	Summary of Policy
	<ul style="list-style-type: none"> ▪ <i>“The baseline depth, habitat condition, quality and stability of carbon rich soils;</i> ▪ <i>The likely effects of the development on peatland, including on soil disturbance; and</i> ▪ <i>The likely net effects of the development on climate emissions and loss of carbon (page 42).”</i>
<p>Policy 6 Forestry, woodland and trees</p>	<p>Policy 6 seeks to protect existing and land with potential future development as woodlands from harm. Development is permissible that compromises woodland assets where:</p> <p><i>“They will achieve significant and clearly defined additional public benefits in accordance with relevant Scottish Government policy on woodland removal. Where woodland is removed, compensatory planting will most likely be expected to be delivered²³.”</i></p> <p>Development that does not accord with any of the following criteria will not be supported:</p> <ul style="list-style-type: none"> ▪ <i>“Any loss of ancient woodlands, ancient and veteran trees, or adverse impact on their ecological condition;</i> ▪ <i>Adverse impacts on native woodlands, hedgerows and individual trees of high biodiversity value, or identified for protection in the Forestry and Woodland Strategy;</i> ▪ <i>Fragmenting or severing woodland habitats, unless appropriate mitigation measures are identified and implemented in line with the mitigation hierarchy;</i> ▪ <i>Conflict with Restocking Direction, Remedial Notice or Registered Notice to Comply issued by Scottish Forestry.” (page 44)</i>
<p>Policy 7 Historic assets and places</p>	<p>Policy 7 affords protection the historical assets and places of an area from development. Development is required to ensure it would not generate significant negative effects on local historical assets and should seek to enhance them and their character/setting.</p>
<p>Policy 11 Energy</p>	<p>Policy 11 governs the requirements for energy related development. Such development is required to maximise its economic benefits to local communities and maximise the amount of renewable energy they could produce. The policy is supportive of wind farm development as demonstrated by the following statement:</p> <p><i>“a) Development proposals for all forms of renewable, low carbon and zero emissions technologies will be supported. These include (i) wind farms, including repowering, expanding and extending the life of existing wind farms”.</i>(Page 53)</p> <p>This has to be balanced against a 13-point criteria to ensure energy related developments do not have unacceptable effects on a wide range of elements, which are listed below:</p> <p>(i) <i>“Impacts on communities and individual dwellings, including, residential amenity, visual impact, noise and shadow flicker;</i></p>

²³ Scottish Government (2023) National Planning Framework 4. Available at:

Policy Number and Title	Summary of Policy
	<ul style="list-style-type: none"> (ii) <i>Significant landscape and visual impacts, recognising that such impacts are to be expected for some forms of renewable energy. Where impacts are localised and/ or appropriate design mitigation has been applied, they will generally be considered to be acceptable; [emphasis added]</i> (iii) <i>Public access, including impact on long distance walking and cycling routes and scenic routes;</i> (iv) <i>Impacts on aviation and defence interests including seismological recording;</i> (v) <i>Impacts on telecommunications and broadcasting installations, particularly ensuring that transmission links are not compromised;</i> (vi) <i>Impacts on road traffic and on adjacent trunk roads, including during construction;</i> (vii) <i>Impacts on historic environment;</i> (viii) <i>Effects on hydrology, the water environment and flood risk;</i> (ix) <i>Biodiversity including impacts on birds;</i> (x) <i>Impacts on trees, woods and forests;</i> (xi) <i>Proposals for the decommissioning of developments, including ancillary infrastructure, and site restoration;</i> (xii) <i>The quality of site restoration plans including the measures in place to safeguard or guarantee availability of finances to effectively implement those plans; and</i> (xiii) <i>Cumulative impacts.” (Page 53)</i>
Policy 12 Zero Waste	Policy 12 requires all development to operate in accordance with the waste hierarchy and overall reduce the amount of waste generated and maximise the potential for the use of recycled material.
Policy 14 Design, quality and place	<p>Policy 14 governs the design of development within Scotland. Developments are required to ensure they are designed to improve their local area, regardless of scale. Development proposals that are in accordance with the following six qualities of a successful place are supported: <i>“Healthy, Pleasant, Connected, Distinctive, Sustainable and Adaptable.”</i> (Page 59)</p> <p>Poorly designed development that is detrimental to the amenity of its surroundings and/or is not in accordance with the six qualities of a successful place would not be supported.</p>
Policy 18 Infrastructure first	Policy 18 requires developments to ensure they mitigate their potential effects on local infrastructure.
Policy 22 Flood risk and water management	Policy 22 seeks to ensure development is sufficiently flood resilient and improves the flood resilience of their surroundings. It also seeks to ensure development does not compromise water resources and use such resources effectively.
Policy 29 Rural development	Policy 29 ensures developments in rural areas provide economic or some form of benefits to these areas, whilst also balancing the potential effects developments can have on a rural areas character and nature.

4.4.8. National planning policy is supported by Planning Circulars, Planning Advice Notes²⁴ (PANs) and Specific Advice Sheets and Ministerial / Chief Planning Letters to Planning Authorities, which set out detailed advice from the Scottish Government in relation to a number of planning issues. The PANS and Specific Advice Sheets considered relevant to the Proposed Development include:

- PAN 1/2011 Planning and Noise, March 2011;
- PAN 2/2011 Planning and Archaeology, July 2011;
- PAN 3/2010 Community Engagement, August 2010;
- PAN 50 Controlling the Environmental Effects of Surface Mineral Workings, October 1996;
- PAN 51 Planning, Environmental Protection and Regulation, October 2006;
- PAN 60 Natural Heritage, January 2000;
- PAN 61 Sustainable Urban Drainage Systems, July 2011;
- PAN 75 Planning for Transport, August 2005;
- PAN 79 Water and Drainage, September 2006;
- Scottish Government's Control of Woodland Removal Policy;
- UK Forest Standard;
- Wind Farm Developments on Peat Land, May 2013;
- Specific Advice Sheet: Guidance on Developments on Peat Land: Peatland Survey, 2017;
- Specific Advice Sheet (updated 28 May 2014): Onshore Wind Turbines;
- Spatial Planning for Onshore Wind Turbines – Natural Heritage Considerations, June 2015;
- Chief Planner Letter regarding Energy Targets and Scottish Planning Policy, 2015;
- Spatial Planning for Onshore Wind Turbines – Natural Heritage Considerations²⁵ (SNH, June 2015);
- Historic Environment Policy for Scotland²⁶ (HEPS); and
- Onshore wind planning: frequently asked questions²⁷.

LOCAL PLANNING POLICY

4.4.9. The current statutory Development Plan applicable to the Site comprises the adopted Scottish Borders Local Development Plan (LDP) 2016 and associated statutory Supplementary Guidance (SG). SBC has been working on a new LDP (the Scottish Borders Council Proposed Local Development Plan 2020) and submitted this updated LDP to Scottish Ministers on the 14th July 2022.

²⁴ [Planning advice notes \(PANs\) - gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/planning-advice-notes/Pages/default.aspx) [Accessed May 2023]

²⁵ [Guidance - Spatial Planning for Onshore Wind Turbines - natural heritage considerations - June 2015.pdf \(nature.scot\)](https://www.nature.scot/publications/guidance-spatial-planning-for-onshore-wind-turbines-natural-heritage-considerations-june-2015/Pages/default.aspx) [Accessed October 2022]

²⁶ [historic-environment-policy-for-scotland \(1\).pdf](https://www.gov.scot/publications/historic-environment-policy-for-scotland-1/Pages/default.aspx) [Accessed October 2022]

²⁷ [Onshore wind planning: frequently asked questions - gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/onshore-wind-planning-frequently-asked-questions/Pages/default.aspx)

Scottish Borders Local Development Plan May 2016²⁸

- 4.4.10. The Scottish Borders LDP 2016 is the current LDP for the Scottish Borders area. It contains the relevant local planning policies that govern development. The relevant key policies to the Proposed Development are identified within **Table 4-2** below.

Table 4-2 - Scottish Borders Local Development Plan 2016 Relevant Policies

Policy Number and Title	Summary of Policy
PMD1 Sustainability	Policy PMD1 establishes that the Council will look favourably upon development that is sustainable. The sustainability of a development will be assessed against a set of criteria that covers everything from how a development protects local natural resources, landscapes, habitats and species to minimising waste and using resources efficiently.
PMD2 Quality Standards	Policy PMD2 identifies that development within the Scottish Borders region are of high standard, ensuring developments are sustainable, of a high quality of design and enhance their surroundings, are accessible and protect local biodiversity assets. Developers could be required to / should supply relevant design documents as appropriate/needed.
Policy ED9 Renewable Energy Development	<p>Policy ED9 governs renewable energy development within the Scottish Borders region. It aims to support renewable energy, including wind energy, and advise on factors to be taken into account when considering proposals.</p> <p>The Policy states that the Council will support proposals for both large scale and community scale renewable energy development including commercial wind farms “<i>where they can be accommodated without unacceptable significant adverse impacts or effects, giving due regard to relevant environmental, community and cumulative impact considerations.</i>” (page 57)</p> <p>The policy sets out the considerations which will be used to assess wind energy proposals. In addition, it states that proposals should take into account the Landscape Capacity and Cumulative Impact report 2013 (since updated to 2016).</p> <p>Wind energy developments will be assessed against a detailed list of criteria to ensure they are sustainable and acceptable development that does not compromise local assets, including views, local heritage & biodiversity, effects on tourism and more.</p> <p>The policy also seeks to ensure wind energy development maximises its economic gain for the local area/Scottish Borders region.</p>
Policy ED10 Protection of Prime Quality Agricultural Land and Carbon Rich Soils	Policy ED10 affords protection to the prime agricultural land and carbon rich soils located within the Scottish Borders region. Development that meets an established need can compromise agricultural land and soil resources but must ensure their benefits are sufficient to offset such loss. The Scottish Borders Wind Farm is within an area with carbon rich soils.

²⁸ Scottish Borders Council (2016) The Scottish Borders Local Development Plan 2016. Available at: https://www.scotborders.gov.uk/info/20051/plans_and_guidance/121/local_development_plan [Accessed March 2023].

Policy Number and Title	Summary of Policy
Policy ED12 Minerals	Policy ED12 seeks to ensure that mineral working is carried out with minimal adverse impacts on the environment and with appropriate restoration measures following extraction. It sets out circumstances where extraction will not be permitted.
Policy EP1 International Nature Conservation Sites and Protected Species	Policy EP1 ensures the important natural conservation sites (Ramsar and Natura sites) and protected species within the Scottish Borders region are protected from development.
Policy EP2 National Nature Conservation and Protected Species	Policy EP2 protects Sites of Specific Scientific Interests and nationally important species from the potential harmful effects of development.
Policy EP3 Local Biodiversity	Policy EP3 protects the Borders Notable Species and Habitats of Conservation Concern unless the public benefits that would result from the development outweigh any adverse effects.
Policy EP7 Listed Buildings	Policy EP7 establishes that the Council will support development proposals that <i>“conserve, protect, and enhance the character, integrity and setting of Listed Buildings.”</i> (page 91-92)
Policy EP8 Archaeology	Policy EP8 protects the archaeological assets of the Scottish Borders region from development, which include National Archaeological Sites, Battlefields and Regional/Local Archaeological Sites.
Policy EP9 Conservation Areas	Policy EP9 protects the physical, character and setting of Conservation Areas within the Scottish Borders region from development.
Policy EP10 Gardens and Designed Landscapes	Policy EP10 ensures development does not compromise the character and setting of local historic gardens and designed landscapes, with any development that potentially could providing a Design Statement detailing how adverse effects would not occur.
Policy EP13 Trees, Woodlands and Hedgerows	<p>Policy EP13 requires development that would compromise woodland resources to ensure they generate sufficient public benefit to outweigh such losses. Any development that could compromise woodland resources are held to the following criteria:</p> <ul style="list-style-type: none"> ■ <i>“Aim to minimise adverse impacts on the biodiversity value of the woodland resource, including its environmental quality, ecological status and viability; and</i> ■ <i>Where there is an unavoidable loss of the woodland resource, ensure appropriate replacement planting, where possible, within the area of the Scottish Borders; and</i> ■ <i>Adhere to any planning agreement sought to enhance the woodland resource.”</i> (Page 107).
Policy EP15 Development Affecting the Water Environment	Policy EP15 ensures development does not compromise the water environments of the Scottish Borders region and ensure development do not pollute local water environments.

Policy Number and Title	Summary of Policy
Policy IS5 Protection of Access Routes	Policy IS5 requires development that compromises a public access route to provide sufficient alternate access options as needed, to ensure the public to no lose access to an area.
Policy IS6 Road Adoption Standards	Policy IS6 establishes that all roads, access tracks and similar aspects of development are constructed in accordance with the Council's high standards.
Policy IS8 Flooding	Policy IS8 ensures development properly assesses their risk of flooding and are designed and developed to ensure they are not at risk of flooding and increase the flood resilience of the area.
Policy IS9 Waste Water Treatment Standards and Sustainable Urban Drainage	Policy IS9 binds developers to properly and safely managing any waste water created. Development is required to utilise Sustainable Urban Drainage to ensure waste water is properly managed and does not lead to an increase in flood risk upon the development site and its surroundings.

Renewable Energy Supplementary Guidance, July 2018²⁹

- 4.4.11. This supplementary guidance applies to wind farms above and below 50MW. It aims to give further guidance on the criteria set out in LDP Policy ED9, and forms part of the Development Plan.

Landscape Capacity and Cumulative Impact Study³⁰

- 4.4.12. This document provides detailed technical assessment and guidance on landscape, visual and cumulative development matters for the SG which forms part of the development plan. The document identifies the Borders Forest Wind farm within the Regional Landscape Area of Cheviot Hills and is entirely comprised of the Regional Landscape Character Types of Upland (specifically Southern Uplands Forest Covered). The Liddesdale Wind Farm site comprises land that is of a wide range of wildness types (ranges from low to high).

Draft Scottish Borders Council Proposed Local Development Plan 2020³¹

- 4.4.13. The new Draft Scottish Borders Council Proposed Local Development Plan 2020 (LDP2020) was submitted to Scottish Ministers on 14th July 2022 for review and approval.
- 4.4.14. Given the advanced nature of this LDP, its policies are a relevant material consideration, as they provide a clearer/updated view of what the Council deems as acceptable development. The policies

²⁹ [Renewable Energy Supplementary Guidance | Scottish Borders Council \(scotborders.gov.uk\)](https://www.scotborders.gov.uk) [accessed March 2023]

³⁰ Scottish Borders Council (2013) Wind Energy Consultancy Landscape Capacity and Cumulative Impact Study. Available at: https://www.scotborders.gov.uk/downloads/file/555/wind_energy_consultancy_-_landscape_capacity_and_cumulative_impact_part_1_main_report [Accessed March 2023].

³¹ Scottish Borders Council (2020) Draft Scottish Borders Council Proposed Local Development Plan 2020 Relevant Policies. Available at: https://www.scotborders.gov.uk/info/20051/plans_and_guidance/121/local_development_plan/2 [Accessed March 2023].

of the LDP2020 often build upon the policies of the 2016 LDP. The relevant policies from the LDP2020 are provided in **Table 4-3** below.

Table 4-3 - Draft Scottish Borders Council Proposed Local Development Plan 2020 Relevant Policies

Policy Number and Title	Summary of Policy
Policy PMD1 Sustainability	<p>Policy PMD1 places sustainability at the heart of planning decisions within the Scottish Borders region. Development will be assessed against the following criteria to ensure it is sustainable:</p> <ul style="list-style-type: none"> a) <i>The long term sustainable use and management of land</i> b) <i>The preservation of air and water quality</i> c) <i>The protection of natural resources, landscapes, habitats, and species</i> d) <i>The protection of built and cultural resources</i> e) <i>The efficient use of energy and resources, particularly non-renewable resources</i> f) <i>The minimisation of waste, including waste water and encouragement to its sustainable management</i> g) <i>The encouragement of walking, cycling, and public transport in preference to the private car</i> h) <i>The minimisation of light pollution</i> i) <i>The protection of public health and safety</i> j) <i>The support to community services and facilities</i> k) <i>The provision of new jobs and support to the local economy</i> l) <i>The involvement of the local community in the design, management and improvement of their environment.” (page 40)</i>
PMD2 Quality Standards	<p>Policy PMD2 identifies that development within the Scottish Borders region are of high standard, ensuring developments are sustainable, of a high quality of design and enhance their surroundings, are accessible and protect local biodiversity assets. Developers could be required to / should supply relevant design documents as appropriate/needed.</p>
Policy ED9 Renewable Energy Development	<p>Policy ED9 contains the criteria and requirements for renewable energy within the Scottish Borders region and re-emphasises the importance of the Renewable Energy 2018 SG. Wind Energy development will be held against the following criteria:</p> <ul style="list-style-type: none"> ■ <i>“The onshore spatial framework which identifies those areas that are likely to be most appropriate for onshore wind turbines;</i> ■ <i>Landscape and visual impacts, to include effects on wild land, and taking into account the report on Landscape Capacity and Cumulative Impact (November 2018) as an initial reference point, the landscape and visual impact assessment for a proposal (which should demonstrate that it can be satisfactorily accommodated in the landscape, and should properly address the issues raised in the 2018 report), and other relevant landscape, visual</i>

Policy Number and Title	Summary of Policy
	<p><i>and cumulative impact guidance, for example that produced by Scottish Natural Heritage;</i></p> <ul style="list-style-type: none"> ■ <i>All cumulative impacts, including cumulative landscape and visual impact, recognising that in some areas the cumulative impact of existing and consented development may limit the capacity for further development;</i> ■ <i>Impacts on communities and individual dwellings (including visual impact, residential amenity, noise and shadow flicker);</i> ■ <i>Impacts on carbon rich soils (using the carbon calculator), public access, the historic environment (including scheduled monuments and listed buildings, and their settings), tourism and recreation, aviation and defence interests and seismological recording, telecommunications and broadcasting installations, and adjacent trunk roads and road traffic;</i> ■ <i>Effects on the natural heritage (including birds), and hydrology, the water environment and flood risk;</i> ■ <i>Opportunities for energy storage;</i> ■ <i>Net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities;</i> ■ <i>Consequences of lighting in terms of visual or amenity impacts;</i> ■ <i>The scale of contribution to renewable energy generation targets, and the effect on greenhouse emissions;</i> ■ <i>The need for conditions relating to the decommissioning of developments, including ancillary infrastructure, and site restoration; and</i> ■ <i>The need for a robust planning obligation to ensure that operators achieve site restoration.” (page 76-77)</i>
Policy ED10 Protection of Prime Quality Agricultural Land and Carbon Rich Soils	Policy ED10 affords protection to the prime agricultural land and carbon rich soils located within the Scottish Borders region. Development that meets an established need can compromise agricultural land and soil resources but must ensure their benefits are sufficient to offset such loss. The Scottish Borders Wind Farm is within an area with carbon rich soils.
Policy ED12 Mineral and Coal Extraction	Policy ED12 seeks to ensure that mineral working is carried out with minimal adverse impacts on the environment and with appropriate restoration measures following extraction. It sets out circumstances where extraction will not be permitted.
Policy EP1 International Nature Conservation Sites and Protected Species	Policy EP1 ensures the important natural conservation sites (Ramsar and Natura sites) and protected species within the Scottish Borders region are protected from development.
Policy EP2 National Nature Conservation and Protected Species	Policy EP2 protects Sites of Specific Scientific Interests, National Nature Reserves and nationally important species from the potential harmful effects of development.

Policy Number and Title	Summary of Policy
Policy EP3 Local Biodiversity and Geodiversity	<p>Policy EP3 protects the Borders Notable Species and Habitats of Conservation Concern unless the public benefits that would result from the development outweigh any adverse effects.</p> <p>The policy also extends its protection to local geodiversity assets, ensuring their integrity and designated status is not compromised by development. Any adverse effects from development on such assets are expected to be mitigated, alongside the development providing significant public benefits.</p>
Policy EP7 Listed Buildings	<p>Policy EP7 establishes that the Council will support development proposals that <i>“conserve, protect, and enhance the character, integrity and setting of Listed Buildings.”</i> (page 120)</p>
Policy EP8 Archaeology	<p>Policy EP8 protects the archaeological assets of the Scottish Borders region from development, which include National Archaeological Sites, Battlefields and Regional/Local Archaeological Sites.</p>
Policy EP9 Conservation Areas	<p>Policy EP9 protects the physical, character and setting of Conservation Areas within the Scottish Borders region from development.</p>
Policy EP10 Gardens and Designed Landscapes	<p>Policy EP10 ensures development does not compromise the character and setting of local historic gardens and designed landscapes, with any development that potentially could providing a Design Statement detailing how adverse effects would not occur.</p>
Policy EP13 Trees, Woodlands and Hedgerows	<p>Policy EP13 requires development that would compromise woodland resources to ensure they generate sufficient public benefit to outweigh such losses. Any development that could compromise woodland resources are held to the following criteria:</p> <ul style="list-style-type: none"> ■ <i>“Aim to minimise adverse impacts on the biodiversity value of the woodland resource, including its environmental quality, ecological status and viability; and</i> ■ <i>Where there is an unavoidable loss of the woodland resource, ensure appropriate replacement planting, where possible, within the area of the Scottish Borders; and</i> ■ <i>Adhere to any planning agreement sought to enhance the woodland resource.”</i> (Page 137)
Policy EP15 Development Affecting the Water Environment	<p>Policy EP15 ensures development does not compromise the water environments of the Scottish Borders region and ensure development do not pollute local water environments. The Council’s decision will be guided by how the development manages the following issues:</p> <ol style="list-style-type: none"> a) <i>Pollution of surface or underground water, including water supply catchment areas, as a result of the nature of any surface or waste water discharge or leachate, including from the disturbance of contaminated land;</i> b) <i>Flood risk within the site or the wider river catchment;</i> c) <i>Proposals for river engineering works that may be required for fisheries management, flood defence or erosion control;</i>

Policy Number and Title	Summary of Policy
	<p>d) <i>Compliance with current best practice on Sustainable Urban Drainage (SUDS) including avoidance of flooding, pollution, extensive canalisation and culverting of watercourses.” (page 142).</i></p>
<p>Policy IS5 Protection of Access Routes</p>	<p>Policy IS5 requires development that compromises a public access route to provide sufficient alternate access options as needed, to ensure the public to no lose access to an area.</p>
<p>Policy IS6 Road Adoption Standards</p>	<p>Policy IS6 establishes that all roads, access tracks and similar aspects of development are constructed in accordance with the Council’s high standards.</p>
<p>Policy IS8 Flooding</p>	<p>Policy IS8 ensures development properly assesses their risk of flooding and are designed and developed to ensure they are not at risk of flooding and increase the flood resilience of the area.</p>
<p>Policy IS9 Waste Water Treatment Standards and Sustainable Urban Drainage</p>	<p>Policy IS9 binds developers to properly and safely managing any waste water created. Development is required to utilise Sustainable Urban Drainage to ensure waste water is properly managed and does no lead to an increase in flood risk upon the development site and its surroundings.</p>

5 LANDSCAPE AND VISUAL IMPACT ASSESSMENT

5.1 INTRODUCTION

- 5.1.1. This chapter sets out the proposed scope of the Landscape and Visual Impact Assessment (LVIA) which would assess the likely significant effects, including cumulative effects, of the Proposed Development on landscape and visual amenity receptors. The following related technical assessments would also be included:
- Residential Visual Amenity Assessment (RVAA); and
 - Night-time Lighting Visual Assessment.
- 5.1.2. Consultees are requested to confirm the scope of this assessment and in particular comment on other known wind farm developments which should be included in the assessment (**Table 5-1**), the proposed viewpoint locations (**Table 5-2**), the assessment methodology (**Section 5.6** and **Appendix B**) including scope of the RVAA and Night-Time Lighting Visual Assessment and matters that are proposed to be scoped out of this assessment (**paragraph 5.5.17**).
- 5.1.3. The chapter is supported by **Figure 5.1a-b to Figure 5.4** in **Appendix A** and should be read in conjunction with **Chapter 2: Project Description**.

5.2 RELEVANT PLANNING POLICY AND TECHNICAL GUIDANCE

- 5.2.1. The LVIA process would take account of national and local planning policy in relation to wind farm development, including the national planning requirements for those areas identified for wind farm development to be suitable for use in perpetuity³².
- 5.2.2. This also includes the adopted Scottish Borders LDP (2016)³³, well as other strategic landscape planning guidance from NatureScot (NS, formerly Scottish Natural Heritage {SNH}) and SBC (including SBC's Supplementary Guidance for Renewable Energy (2018)³⁴ which is an update of Wind Energy Consultancy: Update of Wind Energy Landscape Capacity and Cumulative Impact Study (2016)³⁵.
- 5.2.3. Further information on Planning Policy is provided in **Chapter 4: Legislation, Energy Policy and Planning Policy Context**.

5.3 BASELINE CONDITIONS

- 5.3.1. The Site is located to the east of the B6357 and B6399 covering parts of the Newcastleton and Wauchope Forests on the border of Scotland and England. The landform of the Site reflects the broader character of the Southern Uplands in this area, comprising a wide area of large-scale undulating terrain, interspersed with some small valleys, overlaid in coniferous forestry. The broader landscape is principally large in scale and upland in character, affording open visibility to a number of local hills, out with areas of coniferous forestry.

³² National Planning Framework 4, Policy 11

³³ https://www.scotborders.gov.uk/info/20051/plans_and_guidance/121/local_development_plan

³⁴ https://www.scotborders.gov.uk/downloads/download/659/draft_renewable_energy_supplementary_guidance

³⁵ https://www.scotborders.gov.uk/downloads/download/659/draft_renewable_energy_supplementary_guidance

- 5.3.2. Within upland fringe valleys bordering the Site, a medium scale pattern of pastoral fields is in evidence, often divided by stone walls and hedgerows. The village of Newcastleton (or Copshaw Holm) represents the closest settlement to the Site, lying approximately 5km to the west of the indicative wind turbines at Newcastleton Forest.
- 5.3.3. The B6357 and B6399 lie to the west of Newcastleton Forest, while the B6357 bisects the Site at Wauchope Forest. The A6088 between the Scotland and England Border at Carter Bar and Hawick skirts the northern extent of Wauchope Forest. The A68 (between Edinburgh and Newcastle) and the A7 Borders Historic Route (one of Visit Scotland's Scenic Routes) between Carlisle and Edinburgh lie to the east and west of the Site, respectively.
- 5.3.4. The Site is not located within any international, national or local landscape designations or Wild Land Areas (WLA). The nearest landscape designations are the Northumberland and Kielder Water and Forest International Dark Sky Park, which adjoins the eastern Site boundary on the Scotland / England border. The Scottish Borders Special Landscape Area (SLA) 8: Cheviot Hills, lies approximately 3km to the northeast, and Scottish Borders SLA 5: Teviot Valleys, is located 7.2km to the north (as illustrated on **Figure 5.3a-c** in **Appendix A**).
- 5.3.5. A link route for Sustrans National Cycle Route 10 follows the Scotland / England border on the eastern Site boundary at Newcastleton Forest while the long distance riding route between Kielder Forest and Hawick via 'The Bloody Bush' and Waverley Way passes north of Newcastleton Forest and east of Wauchope Forest (as illustrated on **Figure 5.3b** in **Appendix A**).
- 5.3.6. The Site is remote from major areas of settlement with the nearest villages / towns being:
- Newcastleton - approximately 5km west of Newcastleton Forest;
 - Bonchester Bridge – approximately 7km north of Wauchope Forest; and
 - Hawick – approximately 10km northwest of Wauchope Forest.
- 5.3.7. Human development in the wider landscape is evident including individual farms and other residential properties, roads, coniferous forestry, transmission pylon lines and wind farms including the consented wind farms at Pines Burn, 1.5km to the northwest, and Windy Edge, 6.7km to the west. The closest existing wind farms to the Site are Langhope Rig, formed of 10 turbines and lying 21.2km to the northwest, and Craig (including extension) which comprises six turbines and is located 21.8km to the west.

CURRENT BASELINE

- 5.3.8. The 'host' landscape for the Site is an extensive area of coniferous forestry defined by the Scottish Borders Wind Energy Landscape Capacity and Cumulative Impact Study (2016)³⁶ as Southern Uplands Forest Covered.
- 5.3.9. The Site is bordered by smaller scale, more visually contained upland fringe valleys characterised by pasture in the southwest and extensive woodland cover to the north. To the east and west the landscape maintains a predominantly upland character with coniferous plantation a consistent feature forming an undulating backdrop to upland fringe valleys of contrasting colour and textures.

³⁶ https://www.scotborders.gov.uk/downloads/download/659/draft_renewable_energy_supplementary_guidance

- 5.3.10. North of the Site more intimate, visually contained upland valleys host pockets of smaller settlement and are bordered by rounded hill summits of principally grassland ground cover, where pastoral agriculture is a more prominent land use. There are a number of locally important hill summits in this area, a number of which have promoted viewpoints that can be popular with recreational users.
- 5.3.11. Wind farm development is present within this area and cumulative assessment would be a key part of the LVIA. Wind farm development most relevant to the cumulative assessment is listed in **Table 5-1** and illustrated on **Figure 5.1a-b Figure 5.4** in **Appendix A**.

FUTURE BASELINE

- 5.3.12. Further change to the baseline landscape is likely, as a result of new applications and / or eventual decommissioning or repowering of existing wind farms and their associated grid connections, over the next 10-20 years.
- 5.3.13. Forestry felling and re-stocking is also likely to change the nature of available views across this landscape from various receptors within the LVIA Study Area.

Table 5-1 - Wind Farms relevant to the cumulative assessment

Reference	Name of wind farm	Number of wind turbines	Approximate distance from Proposed Development (m)	Height to blade tip (m)	Status
E01	Langhope Rig	10	21,163	121.2	Existing
E02	Craig	5	21,248	99.5	Existing
E03	Craig Extension	1	21,815	99.5	Existing
E04	Hallburn	6	23,310	125	Existing
E05	Solwaybank	15	25,030	126.5	Existing
E06	Ewe Hill	22	25,397	111.5	Existing
E07	Beck Burn	9	26,221	126.5	Existing
E08	Crossdykes	15	26,547	176.5	Existing
E09	Minsca	16	32,104	120	Existing
E10	Green Rigg	18	33,641	100	Existing
E11	Ray	16	33,647	125	Existing
E12	Halkburn (Long Park)	19	37,189	100	Existing
E13	Orton Park Farm	3	39,704	65/ 86.45	Existing
E14	Great Orton	6	40,763	68.5	Existing

Reference	Name of wind farm	Number of wind turbines	Approximate distance from Proposed Development (m)	Height to blade tip (m)	Status
E15	Wingates	6	43,038	110	Existing
E16	Kirkheaton	3	44,473	66	Existing
E17	Barmoor	6	46,050	110.5	Existing
E18	Toddleburn	15	48,496	110/ 125	Existing
E19	Bowbeat	24	49,247	80	Existing
E20	Minnygap	10	50,699	125	Existing
E21	Harestanes	68	51,556	125	Existing
C01	Pines Burn	12	1,533	130/ 149.9	Consented
C02	Windy Edge	9	6,676	125	Consented
C03	Loganhead	8	21,803	135	Consented
C04	Hopsrig	12	24,497	140	Consented
C05	Little Hartfell	12	29,723	160	Consented
C06	Whitelaw Brae	14	48,835	136.5	Consented
A01	Millmoor Rig	13	351	180/ 200/ 210/ 230	Application
A02	Teviot	62	5,980	180/ 200/ 220/ 240	Application
A03	Faw Side	45	17,145	179.5/ 200	Application
A04	Bloch	21	20,018	180/ 200/ 230	Application
A05	Callisterhall	7	24,990	200	Application
A06	Scoop Hill	75	34,001	180/ 200/ 225/ 250	Application
A07	Greystone Knowe	14	46,369	180	Application
A08	Harestanes South Extension	8	50,705	200	Application

5.3.14. Scoping stage wind farms, single turbines, and applications to vary consent beyond 10km from the Proposed Development have been scoped out of the cumulative assessment, in addition to any turbine below 50 metres height to blade tip.

5.4 DATA SOURCES

- 5.4.1. A range of desk-based and site-based data would be sourced to undertake the LVIA and cumulative assessment, covering landscape and visual receptors and other cumulative wind farm development. The desk-based data would be drawn from Ordnance Survey maps and a range of document sources in addition to the relevant planning policy documents outlined in **Chapter 4: Legislation, Energy Policy and Planning Policy Context**.

PRELIMINARY LVIA STUDY AREA

- 5.4.2. A preliminary LVIA Study Area for the Proposed Development is illustrated on **Figure 5.1a-b** in **Appendix A** in accordance with SNH guidance³⁷ for turbines ≥ 150 m to blade tip, as proposed for the Site.

LANDSCAPE RECEPTOR DATA SOURCES

- 5.4.3. The landscape character of the Site and the proposed LVIA Study Area is described in the following:
- Scottish Borders Wind Energy Landscape Capacity and Cumulative Impact Study, 2016³⁸;
 - Dumfries and Galloway Local Development Plan 2 Supplementary Guidance. Part 1 Wind Energy Development: Development Management Considerations, Appendix C: Dumfries and Galloway Wind Farm Landscape Capacity Study, 2020³⁹;
 - Cumbria Landscape Character Guidance and Toolkit, 2011⁴⁰;
 - Cumbria Wind Energy Supplementary Planning Document, 2007⁴¹;
 - Update of Landscape Character Assessment for Northumberland National Park, 2019⁴²; and
 - Northumberland Landscape Character Assessment, 2010⁴³.
- 5.4.4. There are internationally, nationally and locally designated landscapes within the LVIA Study Area. These and the special landscape qualities for which these areas are protected would be sourced as follows:
- UNESCO World Heritage Convention: Frontiers of the Roman Empire (Hadrian's Wall)⁴⁴.
 - Northumberland National Park Authority: Local Development Framework Landscape Supplementary Planning Document, September 2011⁴⁵;
 - Northumberland National Park Authority: Management Plan, 2022⁴⁶;

³⁷ SNH, February 2017. Visual Representation of Wind Farms: Good Practice Guidance, Version 2.2, page 12.

³⁸ https://www.scotborders.gov.uk/downloads/download/659/draft_renewable_energy_supplementary_guidance

³⁹ <https://www.dumgal.gov.uk/article/17034/LDP2-Supplementary-Guidance>

⁴⁰ <https://legacy.westmorlandandfurness.gov.uk/planning-environment/countryside/countryside-landscape/land/LandCharacter.asp>

⁴¹ <https://www.copeland.gov.uk/content/cumbria-wind-energy-spd#:~:text=The%20Cumbria%20Wind%20Energy%20Supplementary%20Planning%20Document%20%28SPD%29,I%20provides%20locational%20guidance%20for%20wind%20farm%20developments.>

⁴² <https://www.northumberlandnationalpark.org.uk/planning/planning-policy/local-plan/>

⁴³ <https://www.northumberland.gov.uk/Planning/Reports.aspx?nccredirect=1>

⁴⁴ <https://whc.unesco.org/en/list/430/>

⁴⁵ <https://www.northumberlandnationalpark.org.uk/planning/planning-policy/local-plan/>

⁴⁶ <https://www.northumberlandnationalpark.org.uk/about-us/committees-and-plans/management-plan/>

- North Pennines Area of Outstanding Natural Beauty (AONB) Partnership: Management Plan 2019-2024, 2019⁴⁷
- Solway Coast AONB: Management Plan 2020-25, 2020⁴⁸;
- National Scenic Areas (NSAs): The Special Qualities of the NSAs: SNH Commissioned Report No. 374, 2010⁴⁹, and SNH's working draft 'Guidance for Assessing the Effects on Special Landscape Qualities', November 2018;
- SBC Supplementary Planning Guidance: Local Landscape Designations, August 2012⁵⁰; and
- Dumfries and Galloway Local Development Plan 2: Regional Scenic Areas Technical Paper (2018)⁵¹.

- 5.4.5. WLA 2: Talla – Hart Fell is the only WLA within the LVIA Study Area. Located within the north-western part of the LVIA Study Area at an approximate distance of over 35km with very limited visibility of the Proposed Development, it is judged the WLA would not be significantly affected, and a Wild Land Assessment is therefore proposed to be scoped out from the LVIA.
- 5.4.6. Consultation responses in relation to previous proposals for development at this Site have requested the assessment consider the potential effects of the Proposed Development upon the intended South of Scotland/ Borders National Park⁵². The establishment of this National Park is at an early stage meaning engagement would be required with consultees to clarify detailed information such as the proposed boundary, special landscape qualities for which the area would be protected and other vital criteria that would be necessary to enable a detailed assessment of the potential attributable effects of the Proposed Development to be undertaken.
- 5.4.7. Other areas of landscape interest include Gardens and Designed Landscapes. The data for these receptors would be sourced from the following:

- Historic Environment Scotland, Inventory of Gardens and Designed Landscapes⁵³.

VISUAL RECEPTOR DATA SOURCES

- 5.4.8. Visual receptors to be included in the LVIA are settlements and residential properties, transport routes and recreation routes such as long-distance routes (including Scotland's Great Trails, and National Trails in England) and the Core Path Network (Public Rights of Way in England) and outdoor community recreational facilities or places and tourist / visitor attractions and destinations. The locations of these would be sourced from Ordnance Survey maps, site survey information and the following sources:
- The Pennine Way National Trail⁵⁴;

⁴⁷ https://www.northpennines.org.uk/what_we_do/management-plan/

⁴⁸ <https://www.solwaycoastaonb.org.uk/2019/publications/>

⁴⁹ <https://www.nature.scot/doc/naturescot-commissioned-report-374-special-qualities-national-scenic-areas>

⁵⁰ <https://www.scotborders.gov.uk/downloads/file/1124/local-landscape-designations>

⁵¹ <https://dumgal.gov.uk/article/15343/Technical-Papers-Land-Use-Audits-and-Supporting-Documents>

⁵² Scottish-Borders-National-Park-Proposal-Full-May-2023.pdf (scottishbordersnationalpark.com)

⁵³ <http://www.historic-scotland.gov.uk/>

⁵⁴ https://www.nationaltrail.co.uk/en_GB/trails/pennine-way/trail-information/

- Scotland's Great Trails⁵⁵;
- Sustrans National Cycle Network: Route 10
- Core Path Network⁵⁶, Public Right of Way (PRoW)⁵⁷ and other promoted recreational routes;
- Historic Environment Scotland, National Trust and other sites open to the public⁵⁸;
- Walk Highlands Website⁵⁹;
- Forestry and Land Scotland: 7Stanes Mountain Biking Trails (Newcastleton)⁶⁰; and
- Other printed or web-based sources of tourist / recreational literature.

5.4.9. Cumulative information on other existing and consented wind farms and planning applications for other wind farm developments would be sourced from local authority and developer sources.

OTHER TECHNICAL GUIDANCE

5.4.10. In addition, other technical and supporting guidance includes, but is not limited to the following:

- Landscape Institute and IEMA Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA 3);
- SNH, Visual Representation of Windfarms, Version 2.2, February 2017;
- SNH, Siting and Designing Windfarms in the Landscape, Version 3a, August 2017;
- SNH, Guidance: Spatial Planning for Onshore Wind Turbines – natural heritage considerations, Version 3a, June 2015;
- NS, Guidance: General pre-application and scoping advice for onshore wind farms, (August 2022);
- NS, Guidance: Assessing the Cumulative Impact of Onshore Wind Energy Developments, 2021;
- NS, Landscape Character Assessment, 2019;
- NS, Landscape Sensitivity Assessment Guidance, April 2022;
- Countryside Agency and SNH: Landscape Character Assessment, Guidance for England and Scotland, 2002;
- Countryside Agency and SNH: Topic Paper 6. Techniques and Criteria for Judging Capacity and Sensitivity, 2004;
- University of Newcastle for SNH: Visual Assessment of Windfarms: Best Practice, Commissioned Report F01AA303A, 2002;
- Landscape Institute, Residential Visual Amenity Assessment: Technical Information Note, 15 March 2019;

⁵⁵ <https://www.scotlandsgreattrails.com/>

⁵⁶ https://www.scotborders.gov.uk/directory/62/scottish_borders_core_paths

⁵⁷ <https://www.data.gov.uk/dataset/92081172-2856-47d0-8034-a37b57f50c60/public-rights-of-way-northumberland>

⁵⁸ <http://www.historic-scotland.gov.uk/>

⁵⁹ <http://www.walkhighlands.co.uk>

⁶⁰ <https://forestryandland.gov.scot/visit/newcastleton>

- Scottish Renewables, SNH, Scottish Environment Protection Agency, and the Forestry Commission Scotland, Good Practice during Windfarm Construction: Version 3, 2015;
- CAA, Article 222 of the UK Air Navigation Order (ANO) 2016; and
- CAA Policy Statement, Lighting of Onshore Wind Turbine Generators in the United Kingdom with a maximum blade tip height at or in excess of 150m Above Ground Level.

FIELD SURVEYS / MODELLING

- 5.4.11. Field surveys would be undertaken to observe, assess and record landscape and visual receptors and provide a photographic record of each assessment viewpoint in accordance with SNH, Visual Representation of Wind Farms: Good Practice Guidance, Version 2.2. The field studies would include documented visits to all relevant landscape and visual receptors to assess the likely effects of the Proposed Development in the field, checking data, 'ground truthing' and examining landscape elements, characteristics / character, and views / visual amenity.
- 5.4.12. Computer modelling of the landscape / landform, other cumulative development and the Proposed Development would be undertaken using a variety of software to support the LVIA and cumulative assessment.

5.5 SCOPE OF ASSESSMENT

ZONE OF THEORETICAL VISIBILITY AND VIEWPOINT ANALYSIS

- 5.5.1. The Zone of Theoretical Visibility (ZTV) analysis is used to assist the design and further define the scope of the assessment and is used to indicate the areas from where it may be theoretically possible to view all or some of the proposed turbines.
- 5.5.2. The ZTVs have been calculated using ReSoft WindFarm computer software to produce an area of potential visibility of any part of the proposed turbines, calculated to turbine blade-tip. The ZTV does not however take account of built development and vegetation, which can significantly reduce the area and extent of actual visibility in the field and as such provides the limits of the visual assessment Study Area. As a result, there may be an over-estimate of the theoretical visibility with roads, tracks and footpaths in the wider setting which, although shown as falling within the ZTV, having restricted viewing opportunities due to the screening or filtering influence of banks, walls, and vegetation.
- 5.5.3. The ZTVs therefore provide a starting point in the assessment process and can indicate an over-estimated or maximum theoretical visibility of the proposed turbines.
- 5.5.4. A preliminary ZTV map has been produced and is calculated to show the area of theoretical visibility of the proposed turbines based on an indicative 80 turbine layout of up to 250m to blade tip height as follows:
- **Figure 5.1a** in **Appendix A** illustrates the ZTV calculated to blade tip height at 1:425,000 scale across the 45km LVIA Study Area and provides an overview of the theoretical extent of visibility in A3 format. This figure also illustrates the viewpoint locations and cumulative wind farms; and
 - **Figure 5.1b** in **Appendix A** also illustrates the ZTV calculated to blade tip height across the 45km LVIA Study Area and provides an overview of the theoretical extent of visibility. However, **Figure 5.1b** has been prepared at 1:145,000 scale, is overlaid onto a 1:50,000 scale Ordnance

Survey background map and is provided in A0 format. This figure also illustrates the viewpoint locations and cumulative wind farms.

- 5.5.5. For the avoidance of doubt, areas outside the coloured areas of the ZTV would have no view of the Proposed Development and landscape and visual receptors within these areas are consequently scoped out of the LVIA.

CONFIRMATION OF LVIA STUDY AREA

- 5.5.6. The LVIA Study Area for the Proposed Development (**Figure 5.1a-b** in **Appendix A**) is based on a 57,278m radius circle that allows a minimum distance of 45km from the indicative 80 turbine layout in accordance with SNH guidance⁶¹. It represents an over-estimated or maximum theoretical visibility of the Proposed Development. As illustrated on **Figure 5.1a-b** in **Appendix A** much of the area between 30-45km includes areas of sea and remote upland parts of the Southern Uplands and Cheviot Hills to the east and west which would either have no visibility or very limited visibility of the Proposed Development at very long distance. It is therefore proposed to reduce the main LVIA Study Area to 30km distance from the Proposed Development and to focus the assessment of likely and potential significant effects on receptors within this area and the extent of the blade tip ZTV.
- 5.5.7. The detailed LVIA study area would be defined by the potential threshold for significant effects based on the viewpoint analysis and would include local / regional level receptors such as local LCTs, local landscape designations, main settlements, transport routes, 'B' and 'C' class roads, core paths / PRow, promoted viewpoints and local attractions. The viewpoint analysis and field survey would be used to confirm if a receptor can be scoped out and viewpoint analysis used to identify a conservative distance or 'threshold' for significant landscape and visual effects.

CONFIRMATION OF CUMULATIVE LVIA STUDY AREA

- 5.5.8. In accordance with SNH guidance⁶² on cumulative assessment, information on existing and consented wind farms and other planning applications for other wind farm developments would be sourced from within a 'search area' of 60km in order to inform the cumulative assessment of effects on landscape and visual receptors within the 45km radius LVIA Study Area. It is also proposed to reduce the cumulative search area to 30km in line with the main LVIA Study Area.
- 5.5.9. The current cumulative situation is indicated in **Table 5.1** and illustrated in **Figure 5.1a-b- Figure 5.4** in **Appendix A**, showing the locations of wind farms that are existing (including under construction), consented or which are at application stage and where the turbines are greater than 50m to blade tip.
- 5.5.10. Micro-generation turbines and single turbines beyond 10km are excluded. In line with SNH guidance, scoping stage wind farms would not be included with the exception of those within 10km of the Proposed Development. There are currently no scoping stage wind farms within 10km of the Site.

VIEWPOINT SELECTION AND VISUALISATIONS

- 5.5.11. A range of viewpoints have been proposed (as illustrated on **Figure 5.1a-b - 5.4** in **Appendix A**) and consultees are requested to confirm the provisional viewpoint list set out in **Table 5-2** The selection of provisional viewpoints has also been informed by the Environmental Statement for a

⁶¹ SNH, February 2017. Visual Representation of Wind Farms: Good Practice Guidance, Version 2.2

⁶² SNH, March 2012. *Guidance: Assessing the Cumulative Impacts of Onshore Wind Energy Developments*.

previous wind farm application on the Site (SBC ref: 16/00037/SCO), neighbouring existing wind farms and those currently at application stage including Teviot Wind Farm (SBC ref: 22/00871/S36).

5.5.12. Visualisations would be prepared for each viewpoint to accord with NS guidance⁶³. **Table 5-2** provides the following information for each viewpoint:

- Viewpoint name and number;
- Grid coordinates;
- Distance to nearest turbine;
- View direction;
- Viewpoint type and receptor;
- Landscape character type at viewpoint;
- Landscape designation at viewpoint; and
- Visualisation method.

5.5.13. There are also a number of specific receptor locations within 20km which would have No View or very limited visibility of the Proposed Development due to distance (wirelines have been explored from these locations and most have been discounted from the viewpoint list). Wirelines for all these locations would also be included in an appendix to the LVIA in the EIA Report based on the final design:

- Settlement of Teviothead;
- A7, Borders Historic Route (one of Visit Scotland's Scenic Routes) between Hawick and Hollows, north of Canonbie including agreed viewpoints from previous wind farm application (Teviot Wind Farm, SBC ref: 22/00871/S36) at:
 - A7, south of Hawick at Teindside; and
 - A7, Ewes Valley north of Mosspeeble.
- A68 at Carter Bar, on the border between Scotland and England; and
- B6399 northeast of Shankend Farm.

⁶³ SNH, February 2017. Visual Representation of Wind Farms: Good Practice Guidance, Version 2.2

Table 5-2 - Provisional LVIA Viewpoint List

VP No.	Viewpoint	Grid coordinates (Easting / Northing)	Approximate distance to Proposed Development (nearest turbine) (m)	View direction	Viewpoint Type / Receptor	Landscape Character Type at viewpoint	Landscape Designation at viewpoint	Visualisation Method	Other comments
Suggested Viewpoints within 10km									
1	Larriston Fell	357582, 592711	2,908	WE & WW: north N: southwest	Specific – recreational receptors at promoted viewpoint. Close range northerly and south-westerly views of the Site.	Southern Uplands Forest Covered	-	Photomontage	-
2	B6399 northeast of Whitrope Cottages	353463, 601631	693	WE & WW: east N: south	Representative – residents, recreational and road users. Close range easterly and mid-range southerly views of the Site.	Southern Uplands Forest Covered	-	Photomontage	-
3	B6357 south of Hyndlee	358771, 605477	1,744	WE: east WW: west	Representative – residents and road users.	Southern Uplands Forest Covered	-	Photomontage	-

VP No.	Viewpoint	Grid coordinates (Easting / Northing)	Approximate distance to Proposed Development (nearest turbine) (m)	View direction	Viewpoint Type / Receptor	Landscape Character Type at viewpoint	Landscape Designation at viewpoint	Visualisation Method	Other comments
				N: south	Close range easterly and westerly and mid-range southerly views of the Site.				
4	A6088 east of Carter Bar	367370, 607520	3,010	Southwest	Representative – road users and specific – local landscape designations. Close range south-westerly views from westbound road users that are representative of the closest part of the SLA.	Southern Uplands Forest Covered	Scottish Borders SLA 8 – Cheviot Foothills.	Photomontage	-
5	A6088 Southdean	363500, 609100	3,254	Southwest	Representative – residents and road users. Close range south-westerly views of the Site.	Southern Uplands Forest Covered	-	Photomontage	-

VP No.	Viewpoint	Grid coordinates (Easting / Northing)	Approximate distance to Proposed Development (nearest turbine) (m)	View direction	Viewpoint Type / Receptor	Landscape Character Type at viewpoint	Landscape Designation at viewpoint	Visualisation Method	Other comments
6	Kielder Observatory	360915, 593283	5,668	WE & WW: north N: southwest	Specific – recreational receptors at promoted viewpoint. Close range south-westerly and mid-range northerly views of the Site.	Moorland and Forest Mosaic	Northumberland and Kielder Water and Forest International Dark Sky Park	Photomontage	Night-time viewpoint
7	B6357 at Saughtree	356159, 596840	3,986	WE: northeast WW: north N: south	Representative – residents and road users. Close range north-easterly, northerly and southerly views of the Site.	Upland Valley with Pastoral Floor	-	Photomontage	Night-time viewpoint
8	B6357 Newcastleton Village	348576, 587978	3,706	WE & WW: northeast N: east	Representative – residents, recreational and road users. Close range easterly and middle and long range north-	Upland Valley with Pastoral Floor	-	Photomontage	Night-time viewpoint

VP No.	Viewpoint	Grid coordinates (Easting / Northing)	Approximate distance to Proposed Development (nearest turbine) (m)	View direction	Viewpoint Type / Receptor	Landscape Character Type at viewpoint	Landscape Designation at viewpoint	Visualisation Method	Other comments
					easterly views of the Site.				
9	Carby Hill	349070, 584373	4,457	Northeast	Specific – recreational receptors at promoted viewpoint. Close and long range north easterly views of the Site.	Southern Uplands Forest Covered	-	Photomontage	-
10	A6088 NW of Bonchester Bridge	358338, 612154	6,960	South	Representative – road users and specific – local landscape designation. Middle and long range southerly views from the A6088 that are representative of the closest part of the SLA.	Wooded Upland Fringe Valley	Scottish Borders SLA 5 – Teviot Valleys.	Photomontage	-

VP No.	Viewpoint	Grid coordinates (Easting / Northing)	Approximate distance to Proposed Development (nearest turbine) (m)	View direction	Viewpoint Type / Receptor	Landscape Character Type at viewpoint	Landscape Designation at viewpoint	Visualisation Method	Other comments
11	Hermitage Castle	349741, 595981	6,701	WE & WW: northeast N: southeast	Representative – recreational and road users at Scheduled Monument. Middle and long range north-easterly and mid-range south-easterly views towards the Site.	Upland Valley with Pastoral Floor	-	Photomontage	-
12	Blakehope Knick	371253, 598372	8,207	WE & WW: northwest N: southwest	Specific – recreational receptors at promoted viewpoint. Middle and long range north-westerly and long range south-westerly views of the Site.	Moorland and Forest Mosaic	-	Photomontage	-
13	Cauldcleuch Head	345655, 600679	8,498	WE & WW: east N: southwest	Specific – recreational receptors at hill	Southern Uplands with Scattered Forest	-	Photomontage	-

VP No.	Viewpoint	Grid coordinates (Easting / Northing)	Approximate distance to Proposed Development (nearest turbine) (m)	View direction	Viewpoint Type / Receptor	Landscape Character Type at viewpoint	Landscape Designation at viewpoint	Visualisation Method	Other comments
					<p>summit of Donald within the Southern Uplands.</p> <p>Middle and long range easterly and long range south-westerly views of the Site.</p>				
Suggested Viewpoints between 10-20km									
14	Kielder Water	367200, 590200	10,786	WE & WW: northwest N: west	<p>Representative – recreational users at visitor attraction on Lakeside Way and National Cycle Network link route.</p> <p>Long range north-westerly and westerly views towards the Site.</p>	Moorland and Forest Mosaic	<p>Northumberland and Kielder Water and Forest International Dark Sky Park</p> <p>National Cycle Network Route 10 (link route)</p>	Photomontage	-
15	St Leonard's Park, South of Hawick	348388, 611888	10,319	Southeast	Representative – recreational users of core path and Common Good Land.	Grassland with Rock Outcrops	-	Photomontage	-

VP No.	Viewpoint	Grid coordinates (Easting / Northing)	Approximate distance to Proposed Development (nearest turbine) (m)	View direction	Viewpoint Type / Receptor	Landscape Character Type at viewpoint	Landscape Designation at viewpoint	Visualisation Method	Other comments
					Middle and long range south-easterly views towards the Site.				
16	Rubers Law	358026, 615570	10,300	South	Specific – recreational users at promoted viewpoint and hill summit in a landscape designation. Middle and long range southerly views of the Site from this part of the SLA.	Grassland with Hills	Scottish Borders SLA 5 – Teviot Valleys.	Photomontage	-
17	Black Law	361887, 618082	12,093	South	Specific – recreational users of one of Scotland’s Great Trails/ the core path network at a promoted viewpoint and hill summit in a	Grassland with Hills	Scottish Borders SLA 5 – Teviot Valleys. Scotland’s Great Trails:	Photomontage	-

VP No.	Viewpoint	Grid coordinates (Easting / Northing)	Approximate distance to Proposed Development (nearest turbine) (m)	View direction	Viewpoint Type / Receptor	Landscape Character Type at viewpoint	Landscape Designation at viewpoint	Visualisation Method	Other comments
					landscape designation. Long range southerly views of the Site from the centre of the SLA.		Borders Abbeys Way		
18	A7 north of Hawick	351055, 616744	12,680	WE: southeast WW & N: south	Representative – road users on the Borders Historic Route (one of Visit Scotland’s Scenic Routes) and specific – local landscape designation. Long range south-easterly and southerly views from the A7 that are representative of the western part of the SLA.	Pastoral Upland Fringe Valley	Scottish Borders SLA 5 – Teviot Valleys.	Photomontage	
19	Brownhart Law	378778, 609383	13,465	Southwest	Representative – recreational users of a National Trail/ PRow and	Rounded Hills	Northumberland National Park	Photomontage	Night-time viewpoint

VP No.	Viewpoint	Grid coordinates (Easting / Northing)	Approximate distance to Proposed Development (nearest turbine) (m)	View direction	Viewpoint Type / Receptor	Landscape Character Type at viewpoint	Landscape Designation at viewpoint	Visualisation Method	Other comments
					<p>specific – national and local landscape designations.</p> <p>Long range south-westerly views from the western edge of the National Park that are also representative of the eastern boundary of the SLA.</p>		<p>Northumberland and Kielder Water and Forest International Dark Sky Park</p> <p>National Trail: The Pennine Way</p> <p>Scottish Borders</p> <p>SLA 8 – Cheviot Foothills.</p>		
20	Drinkstone Hill	348292, 618590	15,609	Southeast	Specific – recreational users of the core path network in close proximity to two of Scotland's Great Trails at a promoted viewpoint.	Grassland with Rock Outcrops	Scotland's Great Trails: Borders Abbeys Way and Cross Border Drove Road.	Photomontage	-

VP No.	Viewpoint	Grid coordinates (Easting / Northing)	Approximate distance to Proposed Development (nearest turbine) (m)	View direction	Viewpoint Type / Receptor	Landscape Character Type at viewpoint	Landscape Designation at viewpoint	Visualisation Method	Other comments
					Long range south-easterly views towards the Site.				
21	Malcolm Monument, Whita Hill	337938, 584731	14,606	Northeast	Specific – recreational users of core path network at promoted viewpoint and hill summit in a landscape designation. Long range north-easterly views from the RSA.	Southern Uplands	Dumfries and Galloway RSA 10: Langholm Hills.	Photomontage	-
22	Paidon Hill	381900, 592800	19,809	WE & WW: northwest N: west	Representative – recreational users of a National Trail and specific – national landscape designations. Long range westerly views from the National Park.	Rolling Uplands	Northumberland National Park Northumberland and Kielder Water and Forest International Dark Sky Park	Photomontage	-

VP No.	Viewpoint	Grid coordinates (Easting / Northing)	Approximate distance to Proposed Development (nearest turbine) (m)	View direction	Viewpoint Type / Receptor	Landscape Character Type at viewpoint	Landscape Designation at viewpoint	Visualisation Method	Other comments
							National Trail: The Pennine Way		
Suggested Viewpoints between 20-30km									
23	Road Junction at Lanehead	379206, 585658	23,068	WE & WW: northwest N: west	Representative – residents, road users and recreational users of the National Cycle Network and specific – national landscape designations. Long range north-westerly and westerly views from the National Park.	Rolling Uplands	Northumberland National Park Northumberland and Kielder Water and Forest International Dark Sky Park National Cycle Network Route 10	Baseline Photograph and Wireline	-
24	Eildon Hills	354818, 632293	27,066	South	Specific – recreational users at a promoted viewpoint and hill	Grassland with Hills	NSA 29: Eildon and Leaderfoot	Baseline Photograph and Wireline	-

VP No.	Viewpoint	Grid coordinates (Easting / Northing)	Approximate distance to Proposed Development (nearest turbine) (m)	View direction	Viewpoint Type / Receptor	Landscape Character Type at viewpoint	Landscape Designation at viewpoint	Visualisation Method	Other comments
					<p>summit in close proximity to one of Scotland's Great Trails and the core path network.</p> <p>Long range southerly views towards the Site.</p>		Scotland's Great Trails: St Cuthbert's Way.		
25	Hadrian's Wall Path	346320, 561116	26,760	North	<p>Representative – recreational users of a National Trail and specific – World Heritage Site.</p> <p>Long range northerly views towards the Site.</p>	Low Farmland	<p>UNESCO World Heritage Site: Frontiers of the Roman Empire (Hadrian's Wall)</p> <p>National Trail: Hadrian's Wall Path</p>	Baseline Photograph and Wireline	-

POTENTIAL RECEPTORS

5.5.14. Landscape and visual receptors within the LVIA Study Area, most likely to be significantly affected tend to be those which are of higher sensitivity, located closest to the Proposed Development, incurring a direct and / or higher magnitude or level of effect. Viewpoint analysis and site survey, which includes an assessment of sensitivity and magnitude, would be used as part of the assessment to identify those receptors which are most likely to be significantly affected.

LIKELY SIGNIFICANT EFFECTS

- 5.5.15. The likely significant landscape, visual and cumulative effects that would be taken forward for assessment in the EIA Report are summarised in **Table 5-3**.
- 5.5.16. It is important to note that whilst some effects can be identified as likely to be significant at this pre-assessment stage, there is the potential for other receptors to be significantly affected, subject to further details of the LVIA and cumulative assessment. Receptors which are unlikely to be significantly affected may, subject to further assessment, be excluded from detailed assessment in the LVIA.

Table 5-3 - Likely Significant Landscape, Visual and Cumulative Effects

Stage of Development and Activity	Likely significant effect	Receptor
Landscape and Cumulative Landscape Effects		
Construction: Site preparation and construction of associated infrastructure (tracks, borrow pits, control buildings / sub-stations, contractors' facilities, site access and electrical cabling).	Direct localised effects on the host landscape character, characteristics and landscape elements may be significant.	Landscape character: <i>Southern Uplands Forest Covered LCT</i>
Construction and Operation: Turbine erection and operation.	Direct effects on the host landscape character, characteristics and potentially the landscape elements are likely to be significant within ~2-3km. Indirect effects related to the visibility of the turbines and their effect on landscape character and perceptual characteristics have the potential to be significant.	Landscape character: <i>Southern Uplands Forest Covered LCT</i> Other Landscape character units: <i>Southern Uplands with Scattered Forest, Cheviot Foothills, Grassland with Hills, Moorland and Forest Mosaic, Upland Valley with Pastoral Floor, and Wooded Upland Fringe Valley.</i> Northumberland and Kielder Water and Forest International Dark Sky Park Scottish Borders SLA 8: Cheviot Foothills

Stage of Development and Activity	Likely significant effect	Receptor
Decommissioning: Removal of turbines and associated infrastructure such as control buildings / sub-stations.	Effects unlikely to be significant and would largely reverse the effects of turbine construction and operation.	
Visual and Cumulative Visual Effects		
Construction: Site preparation and construction of associated infrastructure (tracks, borrow pits, control buildings / sub-stations, contractors' facilities, site access and electrical cabling).	Effects on views and visual amenity resulting from visibility of the proposed wind turbines within ~1-2km distance, subject to detailed viewpoint analysis.	Road users of the A6088, B6357 and B6399. Residents of Newcastleton and a small number of scattered residential properties. Recreational users of core path/ PRow network in close proximity to the Site.
Construction and Operation: Turbine erection and operation.	Effects on views and visual amenity resulting from visibility of the proposed wind turbines within ~5-10km distance, subject to detailed viewpoint analysis. Views of the proposed aviation warning lights and adverse effects on night-time views within ~5-10km distance, subject to detailed viewpoint analysis and the proposed lighting strategy.	A number of villages and residential properties Roads including parts of the A7, A6088, B6357 and B6399. National and local recreational routes. Local visitor attractions including promoted viewpoints at hill summits.
Decommissioning: Removal of turbines and associated infrastructure such as control buildings / sub-stations.	A reduction in the operational effects on views and visual amenity resulting from <u>no</u> visibility of the proposed wind turbines.	Road users of the A6088, B6357 and B6399. Residents of Newcastleton and a small number of scattered residential properties. Recreational users of core path/ PRow network in close proximity to the Site.

POTENTIAL EFFECTS PROPOSED TO BE SCOPED OUT OF FURTHER ASSESSMENT

5.5.17. As a result of the characteristics of the Site, baseline receptors and the Proposed Development, it is considered that some receptors would not be significantly affected in the context of the EIA Regulations. These receptors / effects can therefore be scoped out from further assessment in the EIA Report as follows:

- LVIA Wider and Detailed Study Area:
 - Limit the wider LVIA Study Area for the landscape, visual and cumulative assessment to 30km following analysis of the blade tip ZTV (due to predominance of areas of sea and remote upland regions with very limited visibility of the Proposed Development beyond this).

- The detailed LVIA Study Area would be defined by the potential threshold for significant effects based on the viewpoint analysis and would include local, regional, national and international level receptors such as local LCTs, World Heritage Site, national and local landscape designations, main settlements, transport routes, 'B' and 'C' class roads, core paths/ PRoWs, national and local recreational routes, local attractions including promoted viewpoints and hill summits. The viewpoint analysis and field survey would be used to confirm if a receptor can be scoped out and viewpoint analysis used to identify a conservative distance or 'threshold' for significant landscape and visual effects.
- Cumulative Assessment:
 - Limit the cumulative baseline of all operational and consented wind energy development and other applications for wind energy development to within 30km of the Site to match the LVIA Study Area; and
 - Exclude other scoping stage, pre-application schemes, single turbines and applications to vary consent in line with SNH guidance, except for those within 5-10km of the Proposed Development. These schemes would also be included on the viewpoint wirelines. Any turbine development below 50 metres height to blade tip has also been excluded.
- Receptors out with the ZTV:
 - All receptors within the Study Area that are out with the blade tip ZTV would have no view of the Proposed Development.
- Areas of Outstanding Natural Beauty:
 - Effects on the Special Landscape Qualities of the North Pennines and Solway Coast AONBs are proposed to be excluded from the assessment due to the very limited visibility and long intervening distance from the Proposed Development.
- Wild Land Assessment:
 - A Wild Land Assessment for WLA 2: Talla – Hart Fell is proposed to be excluded from the assessment due to the very limited visibility and long intervening distance (over 35km) from the Proposed Development.
- Scottish Borders, East Lothian and Midlothian SLAs:
 - With the exception of the following SLAs, effects on the special landscape qualities of all remaining SLAs within the Study Area are proposed to be excluded from the assessment due to the very limited visibility and long intervening distance of the Proposed Development:
 - Scottish Borders SLA 5: Teviot Valleys; and
 - Scottish Borders SLA 8: Cheviot Foothills.

5.6 ASSESSMENT METHODOLOGY

- 5.6.1. A summary of the proposed landscape, visual, Night-time Lighting Assessment and RVAA methodology is set out below with the full methodology in **Appendix C**.

INTEGRATED DESIGN AND ASSESSMENT

- 5.6.2. Design is an integrated part of the LVIA process as part of iterative design and assessment. In this case the LVIA and any associated design and mitigation would work closely with the ecology specialists to propose locally appropriate mitigation planting, to realise opportunities, where required and possible, for landscape mitigation and enhancement.
- 5.6.3. As set out in **Section 2.4**, the turbine layout of the Proposed Development for the purposes of scoping represents a maximum parameter for turbines within the Site boundary. The EIA process would lead to further refinement of this layout as site constraints become known and assessed in more detail.
- 5.6.4. The design strategy for the Proposed Development is underpinned by a number of design objectives which are repeated here:
- Maximise the production of renewable energy generation, in the context of the Scottish Ministers having declared a climate emergency and ambitious new targets having been set in the Climate Change (Emissions Reduction Targets) (Scotland) Bill 2019;
 - Respect the environmental assets and constraints including watercourses, areas of deep peat and topography, nature conservation interests, landscape, archaeological interests and other environmental qualities of the Site and its surroundings; and
 - Comply with industry best practice in terms of turbine spacing to ensure safety and maximise wind yield.
- 5.6.5. The Applicant is also actively seeking to identify opportunities to implement nature positive measures as part for the Proposed Development. This is likely to include peatland habitat management and measures to increase landscape capacity, biodiversity and landscape improvements.
- 5.6.6. The methodology for the LVIA would be undertaken in accordance with the Landscape Institute and IEMA Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA 3), and other best practice guidance.

ASSESSMENT OF LANDSCAPE EFFECTS

- 5.6.7. Landscape Effects are defined by the Landscape Institute in GLVIA 3, paragraphs 5.1 and 5.2 as follows:
- “An assessment of landscape effects deals with the effects of change and development on landscape as a resource. The concern ... is with how the proposal will affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character. ... The area of landscape that should be covered in assessing landscape effects should include the site itself and the full extent of the wider landscape around it which the proposed development may influence in a significant manner.”*
- 5.6.8. The potential landscape effects occurring during the construction, operational and decommissioning periods may therefore include, but are not restricted to, the following:
- Changes to landscape elements: the addition of new elements (wind turbines) or the removal of existing elements such as trees, vegetation and buildings and other characteristic elements of the landscape character type;

- Changes to landscape qualities: degradation or erosion of landscape elements and patterns and perceptual characteristics, particularly those that form key characteristic elements of landscape character types/ areas or contribute to the landscape value;
- Changes to landscape character: landscape character may be affected through the incremental effect on characteristic elements, landscape patterns and qualities (including perceptual characteristics) and the addition of new features, the magnitude of which is sufficient to alter the overall landscape character within a particular area;
- Changes to designated landscapes: Including nationally and locally designated landscapes that would affect the special landscape qualities underpinning these areas and their integrity; and
- Cumulative landscape effects: where more than one wind farm may lead to a potential landscape effect.

5.6.9. Development may have a direct effect on the landscape as well as an indirect effect which would be perceived from the wider landscape, outside the immediate site area and its associated landscape character/ designation. Landscape effects also have to be recognised in terms of natural and man-made processes which can change or alter the landscape over time.

ASSESSMENT OF VISUAL EFFECTS

5.6.10. Visual Effects are concerned wholly with the effect of the development on views, and the general visual amenity, and are defined by the Landscape Institute in GLVIA 3, paragraphs 6.1 as follows:

“An assessment of visual effects deals with the effects of change and development on views available to people and their visual amenity. The concern ... is with assessing how the surroundings of individuals or groups of people may be specifically affected by changes in the context and character of views.”

5.6.11. Visual effects are identified for different receptors (people) who would experience the view(s) at their places of residence, during recreational activities, at work, or when travelling through the area. The visual effects may include the following:

- Visual effect: a change to an existing static view, sequential views, or wider visual amenity as a result of development or the loss of particular landscape elements or features already present in the view(s); and
- Cumulative visual effects: the cumulative or incremental visibility of similar types of development may combine to have a cumulative visual effect.

5.6.12. The level of visual effect (and whether this is significant) is determined through consideration of the sensitivity of each visual receptor (or range of sensitivities for receptor groups) and the magnitude of change that would be brought about by the construction, operation and decommissioning of the Proposed Development.

CUMULATIVE LANDSCAPE AND VISUAL IMPACT ASSESSMENT

5.6.13. The assessment of cumulative effects is essentially the same as for the assessment of the ‘solus’ landscape and visual effects, in that the level of landscape and visual effect is determined by assessing the sensitivity of the landscape or visual receptor and the magnitude of change. Cumulative assessment however considers the magnitude of change posed by multiple developments.

5.6.14. The cumulative assessment would accord with NS guidance (2021) and would be prepared to ensure that, as well as the effects of the Proposed Development (LVIA), the ‘additional’ cumulative effects and the ‘combined’ cumulative effects (CLVIA) are also reported to account for two cumulative Scenarios as follows:

- Proposed Development:

Assessed on an individual basis (the LVIA). This part of the assessment may take account of other existing forms of wind farm development that may be present in the landscape, whilst recognising that their influence on landscape character is likely to be time limited. It does not consider the additional or combined cumulative effects and only reports of the effect of the Proposed Development alone;

- Scenario 1: Existing + Consented + the Proposed Development:

The additional and combined cumulative effects of the existing and consented wind energy developments with the Proposed Development would be assessed.

- Scenario 2: Existing + Consented + Applications + the Proposed Development:

The additional and combined cumulative effects of the existing and consented wind energy developments and live applications (which would include schemes at planning appeal), with the Proposed Development would be assessed.

5.6.15. In addition, the cumulative assessment takes account of the timescales, as far as practicable, for the operation of the existing and consented developments and assumes that these would be decommissioned within the operational life of the Proposed Development.

DETERMINING THE SIGNIFICANCE OF EFFECTS

5.6.16. The matrix presented in **Table 5-4** is used as a guide to illustrate the LVIA process. In line with the emphasis placed in GLVIA 3 upon the application of professional judgement, an overly mechanistic reliance upon a matrix is avoided through the provision of clear and accessible narrative explanations of the rationale underlying the assessment made for each landscape and visual receptor. Such narrative assessments provide a level of detail over and above the outline assessment provided by use of the matrix alone.

5.6.17. The landscape and visual assessment unavoidably, involves a combination of quantitative and qualitative assessment and wherever possible cross references would be made to objective evidence, baseline figures and / or to photomontage visualisations to support the assessment conclusions. Often a consensus of professional opinion has been sought through consultation, internal peer review, and the adoption of a systematic, impartial, and professional approach. Importantly each effect results from its own unique set of circumstances and have been assessed on a case-by-case basis. The matrix should therefore be considered as a guide and any deviation from this guide would be clearly explained in the assessment.

5.6.18. In accordance with the EIA Regulations, it is important to determine whether the effects, assessed as a result of the Proposed Development, are likely to be significant. Significant landscape and visual effects would be highlighted in bold in the text and in most cases, relate to all those effects that result in a ‘**Substantial**’, ‘**Major**’ or a ‘**Major to Moderate**’ effect as indicated in **Table 5-4** (and shaded dark grey). ‘**Moderate**’ levels of effect (shaded grey) can also be assessed as significant, subject to the assessor’s opinion that should be clearly explained as part of the assessment.

5.6.19. White or un-shaded boxes in **Table 5-4** indicate a non-significant effect. In those instances where there would be no effect, the magnitude has been recorded as ‘Zero’ and the level of effect as ‘None’ or ‘No View’. Intermediate levels of magnitude or effect are also used in the LVIA and are shown in italics, for example High – Medium magnitude or Substantial to Major level of effect.

Table 5-4 - Evaluation of Landscape and Visual Effects

Magnitude of Change	Landscape and Visual Sensitivity			
	High	Medium	Low	Very Low
High	Substantial	Major	Moderate	Not used
<i>High - Medium</i>	<i>Substantial to Major</i>	<i>Major to Moderate</i>	<i>Moderate to Minor</i>	
Medium	Major	Moderate	Minor	
<i>Medium - Low</i>	<i>Major to Moderate</i>	<i>Moderate to Minor</i>	<i>Minor</i>	
Low	Moderate	Minor	Negligible	
<i>Low – Very Low</i>	<i>Moderate to Minor</i>	<i>Negligible</i>	<i>Negligible</i>	
Very Low	Minor	Negligible	Negligible	
Zero	None / No View			

RESIDENTIAL VISUAL AMENITY ASSESSMENT

5.6.20. Residential amenity is a planning matter that involves a wide number of effects (such as noise and shadow flicker) and benefits, of which residential visual amenity is just one component. A RVAA would be undertaken to assess effects on residential visual amenity likely to be experienced at residential properties within 2km of the Site. The RVAA would accord with the advice in GLVIA 3, the Landscape Institute’s Residential Visual Amenity Assessment: Technical Guidance Note, 2019.

5.6.21. As a minimum the visual effects on the views from each property included in the assessment would be illustrated by an accompanying wireline.

NIGHT-TIME LIGHTING ASSESSMENT

5.6.22. Aviation warning lights attached to turbine hubs and towers are required on all proposed wind turbines ≥150 m in accordance with Article 222 of the UK Air Navigation Order (ANO) 2016, subject to any proposed lighting mitigation strategy which would be agreed with the CAA prior to undertaking the assessment.

- 5.6.23. A proportionate Night-Time Assessment of the proposed aviation lighting would be undertaken to accord with NS guidance⁶⁴. Night-time effects on landscape character receptors are proposed to be scoped out, however, night-time effects on the special landscape qualities of the designated landscapes including the Northumberland Dark Sky Park would be included. The assessment would be supported by maps indicating the ZTV of any proposed aviation warning lights and 4 No. Night-time Viewpoints. However, in accordance with NS Guidance, all 25 viewpoints reported in **Table 5-2** would have the lit turbines noted on the wirelines.
- 5.6.24. The proposed Night-Time Viewpoints have been selected as being representative of locations where there are likely to be people at night and include roads and settlements as follows (with the exception of one viewpoint which is located within the Northumberland Dark Sky Park):
- Viewpoint 6 – Kielder Observatory;
 - Viewpoint 7 – B6357 at Saughtree;
 - Viewpoint 8 – B6357 at Newcastleton; and
 - Viewpoint 19 – Brownhart Law (located within the Northumberland Dark Sky Park).
- 5.6.25. A night-time ZTV of the turbine lighting positions would accompany the visualisations to aid the assessment which would be dependent on the Lighting Strategy agreed with the CAA.

⁶⁴ NatureScot, General pre-application and scoping advice for onshore wind farms, August 2022

6 CULTURAL HERITAGE

6.1 INTRODUCTION

- 6.1.1. This chapter considers the historic environment impacts associated with the Proposed Development. It describes the key considerations of the historic environment on and surrounding the Site, including the archaeological and built heritage potential of the surrounding landscape. The chapter should be read in conjunction with **Chapter 2: Project Description**.
- 6.1.2. In addition to those policies contained NPF4, relevant national policies are contained within the Historic Environment Policy for Scotland (HEPS) and advice relating to archaeological matters is detailed within Historic Environment Scotland's (HES) Managing Change in the Historic Environment guidance note series. The study area for settings effects as set out in more detail below falls partly within England and relevant policies would apply in these areas. English guidance notes, including Historic England (HE) Good Practice Advice in Planning Note 3 (GPA 3): The Setting of Heritage Assets (2017) would be referred to in the EIA Report.
- 6.1.3. In addition to NPF4, the Scottish Borders Local Development Plan 2016 forms part of the statutory Development Plan applicable to the Site. It contains the relevant local planning policies.
- 6.1.4. A summary of the relevant planning policies is given in **Chapter 4: Legislation, Energy Policy and Planning Policy Context**.

6.2 BASELINE CONDITIONS

DATA GATHERING METHODOLOGY

- 6.2.1. The EIA Scoping exercise has been undertaken with reference to **Chapter 2** supported by a number of data sources. The principal data sources used to inform this chapter for potential effects comprise the following:
- Designated historic environment spatial data and Historic Land use Assessment (HLA) mapping from HES and HE;
 - Non-designated historic environment spatial data for information relating to the Site itself, from SBC; viewed online at the HES Pastmap; and
 - Historic mapping from National Library of Scotland (NLS).

CURRENT BASELINE

- 6.2.2. The majority of the Site comprises commercial forestry within the Wauchope Forest and Newcastleton Forest, largely made up of coniferous plantation.
- 6.2.3. Within the developable areas, and the wider Site, there are a number of designated heritage assets, particularly within the northern extent (**Figure 6.1**). These comprise assets including field systems (SM6599), farmsteads (SM6601 and 6602), remains of settlements (e.g., SM2319) as well as a stone circle (SM1688) and a long cairn (SM2154).

- 6.2.4. The information for non-designated assets available through Pastmap further illustrates the presence of numerous non-designated heritage features within the Newcastleton Forest area including farmsteads, roads, stock enclosures, dating to the post-medieval and in some cases medieval periods. Features within the more northern element of the Site include remains of the Border Union railway, as well as further farmsteads, roads, cairns, settlements and quarries associated with the earlier use of the landscape.
- 6.2.5. A number of designated assets that may be subject to indirect effects are present within the wider ZTV of the proposed layout and include a wide range of structures from churches to viaducts, bridges, mills, farmhouses and townhouses.

FUTURE BASELINE

- 6.2.6. No changes are anticipated in the baseline condition prior to the Proposed Development being constructed and operated. The Site would continue to be managed as planted woodland.

6.3 METHODOLOGY

- 6.3.1. The proposed generic project-wide approach to the assessment methodology is set out in **Chapter 3: EIA Process and Consultation** and specifically in **Section 3.6**. However, whilst this would inform the approach that would be taken for the Historic Environment assessment, it is necessary to set out how this methodology would be applied, and adapted as appropriate, to address the specific needs of the Historic Environment assessment for the EIA.

GENERAL APPROACH

- 6.3.2. Aspects of the Historic Environment that are considered by this assessment consist of designated and non-designated heritage assets within and near the Site, as well as designated heritage assets within the wider landscape. Designated heritage assets are statutorily protected and include listed buildings, scheduled monuments, inventory gardens and designed landscapes and conservation areas. Non-designated heritage assets can include artefact find locations, sites of archaeological interest or surviving structures and manmade features within the landscape that are of historic interest but are not statutorily protected.
- 6.3.3. The Study Area for the Historic Environment chapter covers a buffer distance of 500m from the Site boundary to assess the potential for designated and non-designated heritage assets which may be subject to direct disturbance or through effects such as dewatering.
- 6.3.4. An extended Study Area of 10km from the Site boundary would be used to identify designated and nationally important heritage assets which may be subject to indirect effects.
- 6.3.5. Due to the nature of effects arising through change to setting being predominantly related to the visibility to, or from, a heritage asset, the full scope of these effects would be determined with reference to the finalised ZTV for the Proposed Development. This scope would also inform whether any further photomontage or wireframe visualisation not already incorporated into the LVIA assessment would be required to support the assessment of historic assets.
- 6.3.6. An assessment of how views of the Proposed Development may affect the understanding and experience of heritage assets would be undertaken and where views of, or from, these assets towards the Site could contribute to their setting, would be assessed further and visited where possible.

- 6.3.7. Any previously recorded heritage assets within the HER or previously unknown non-designated heritage assets identified through assessment that would be susceptible to disturbance as a result of the construction of the Proposed Development would be included within the assessment of effects.
- 6.3.8. The temporal scope of the assessment of Historic Environment effects is consistent with the period over which the Proposed Development would be carried out and therefore covers the development and construction periods, followed by operation, maintenance and decommissioning.
- 6.3.9. A site visit would be undertaken to confirm the presence of assets within the Site as far as possible, and to confirm assets which may be subject to effects arising as a result of change to setting.

DETERMINATION OF SIGNIFICANCE

- 6.3.10. **Table 6-1** details the basis for assessing receptor importance. The rationale is predominantly based on information provided within HEPS as well as NPPF4 and GPA3. Note that categorisation of those assets which are of less than national importance generally relies on professional judgement.

Table 6-1 - Establishing the Importance of Receptors

Importance	Receptor type	Sensitivity
High	Designated heritage assets including Scheduled Monuments, Category A/Grade I listed buildings, Inventory Battlefields and Designed Landscapes.	These assets are considered highly sensitive due to their national importance, and it is possible that low-moderate impacts upon these assets or their settings could lead to significant effects.
Medium	Category B/Grade II* and C/Grade II Listed Buildings, Conservation Areas, parks and historic landscapes recognised by local and regional designations and non-designated sites and monuments of regional importance.	These assets are best seen as of regional, or more than local importance and their sensitivity would largely depend upon their current setting and their character. It is possible that moderate-high impacts upon these assets or their settings could lead to significant effects.
Low	Non-designated assets of local importance.	These include assets of local interest, some of which no longer survive and may have limited potential for survival of archaeological material. Although these assets must be considered and mitigation may be required, significant effects are only likely if the assets were to be predominantly or totally destroyed as a result of the Proposed Works.
Negligible	Historic features of note but which cannot be considered heritage assets in their own right.	Due to its nature of form / condition / survival, the feature cannot be considered an asset in its own right but may inform the EIA or suggest the potential for further remains (e.g., non-extant HER record, chance find, record of recorded feature that cannot be located).

- 6.3.11. The significance of an effect resulting from a proposed development during construction or operation is most commonly assessed by reference to the sensitivity (or value) of a receptor and the magnitude of the effect upon the asset, including its setting. This approach provides a mechanism for identifying areas where mitigation measures may be required and to identify the most appropriate measures to alleviate the risk presented by the proposed development.
- 6.3.12. Magnitude of change is a measure of the extent to which the significance of an asset would be disturbed or lost.
- 6.3.13. In respect of buried archaeological deposits, where no remains are visible above ground, this would arise from direct disturbance or removal of archaeological material. Direct loss, damage or alteration of a structure would not only affect architectural value but could also result in the loss of elements valued for their archaeological potential or historic associations.
- 6.3.14. The setting of any particular asset is unique and may comprise both tangible and intangible aspects of the assets' context which contribute to how they may be understood, appreciated and experienced. The effects of change in the setting of a heritage asset depends on the contribution of that setting to the significance of the asset, and assessments must be, by their nature, specific to the individual assets being considered.
- 6.3.15. The magnitude of change (or impact) is based on the extent to which the significance of an asset is affected, which can be influenced by a number of factors:
 - The permanence of the impact (temporary, permanent or reversible);
 - Changes caused by the impact (both positive and negative); and
 - The extent or aspect of the heritage asset or its setting that would be affected (for example, the whole or a very small part) and the contribution of that part to the historic value of the asset.
- 6.3.16. **Table 6-2** details the basis for assessing magnitude of change.

Table 6-2 - Establishing the Magnitude of Change

Magnitude	Criteria (Adverse)	Criteria (Beneficial)
High	Total or substantial demolition / disturbance of a heritage asset, or disassociation of an asset from its setting.	Sympathetic restoration of an at-risk or otherwise degraded heritage asset and/or its setting. Bringing an at-risk heritage asset into sustainable use, with robust long-term management secured.
Medium	Partial disturbance or inappropriate alteration of a heritage asset. Change to the key characteristics of a heritage asset's setting, which affects the importance of the asset, but which still allows its cultural significance to be appreciated.	Appropriate stabilisation and/or enhancement of a heritage asset and/or its setting that better reveal the significance of the asset or contribute to a long-term sustainable use or management regime.
Low	Minor loss to or alteration of an asset which leave its current importance largely intact. Minor and short term changes to setting which do not affect the key characteristics and in which the historical context remains substantially intact.	Minor enhancements to a heritage asset and/or its setting that better reveal its significance or contribute to sustainable use and management.

Magnitude	Criteria (Adverse)	Criteria (Beneficial)
Negligible	Minor alteration of an asset which does not discernibly affect its importance. Minor and short term or reversible change to setting which do not affect the asset.	Minor alteration of an asset which does not affect its significance in any discernible way. Minor and/or short-term or reversible change to setting which does not affect the significance of the asset.

LIMITATIONS

- 6.3.17. Some assets earmarked for detailed assessment may not be safely accessible for site visits owing to land access restrictions through private ownership or other safety concerns. Where applicable, these restrictions would be noted in the EIA chapter text and where relevant visualisations would be sought to compensate for this.

6.4 POTENTIAL IMPACTS AND RECEPTORS

- 6.4.1. Physical effects could arise from physical disturbance to either known or as yet undiscovered heritage assets through construction activities relating to the turbines and associated infrastructure of the Proposed Development.
- 6.4.2. There are a number of designated heritage assets within the Site, as well as numerous non-designated records, the majority of these being of local or lesser importance. It is anticipated that detailed site design would avoid physical effects on designated historic environment receptors where possible.

Settings effects could occur if turbines are visible in views of the heritage asset, from the heritage asset or in views of related assets. Depending upon the nature of the historic asset, further perceptual change may affect its setting, such as noise (for example if turbines could be heard to a distracting level within a peaceful setting such as a cemetery). At present, it is anticipated that historic environment receptors that would require detailed assessment of effects arising through change to setting would include the assets set out in **Tables 6-3 - Table 6-5** below and are shown on **Figure 6.1**.

- 6.4.3. Heritage assets have been scoped out of the assessment where:
- The Proposed Development would not be visible in views of or from the asset through screening from terrain, nearby buildings or established woodland (but excluding commercial forestry). It is anticipated that once forestry is reviewed further then additional assets may be scoped out in consultation with consultees; and
 - Where the setting of the asset is not sensitive to the perceptual change anticipated at the predicted separation from the Proposed Development.
- 6.4.4. This exercise has been informed by use of the predicted bare-earth scoping ZTV, reference to the HES and HE spatial datasets and asset descriptions in Pastmap and Canmore, mapping and aerial photography.

Table 6-3 - Within Site Boundary (Scotland)

HES Reference	Title	Easting	Northing
SM1688	Nine Stones, stone circle, Ninestone Rig	351749	597307
SM2154	Long Knowe, long cairn	352722	586200
SM2319	Black Hill, settlement	359609	606565
SM4007	Riccarton Tower	354401	595810
SM6599	Martinlee Sike, enclosure bank, field system, cairns & old road	365522	607911
SM6601	Martinlee Plantation, homestead SE of Martinlee Sike	365638	607911
SM6602	Martinlee Sike, farmstead, field system and assart bank.	365790	607574
SM10605	Tamshiel Rig, fort, settlement and field system	364303	606342
LB49311 (B)	Whitrope Culvert	352496	599977
LB49311 (B)	Whitrope Viaduct	352472	599984

Table 6-4 - Scoped in Assets Within 10km (Scotland)

HES Reference	Title	Easting	Northing
SM1690	Carby Hill, settlement	349061	584364
SM1699	The Law, fort	371958	615844
SM1700	Kirkton Hill, fort	353669	612379
SM1716	Liddel Castle, Newcastleton	350966	589975
SM2116	Dykeheads, homestead moat	358223	607343
SM2129	Rubers Law, fort & Roman signal station	358051	615572
SM2149	Kirk Hill, enclosure	346276	586391
SM2152	Shaw Craigs, fort	367303	609502
SM2163	Iron Castle, earthwork	363160	612612
SM2173	Bonchester Hill, fort	359479	611731
SM2188	Ettleton Cemetery, tombstones	347226	586313
SM2211	Southdean Law, fort & settlement	363517	609392
SM2296	Penchrise Pen, fort 635m SW of Penchrise Farm Cottage	349086	606245

HES Reference	Title	Easting	Northing
SM2297	Blakebillend,fort	351512	606298
SM2468	Stotfield, cultivation terraces	369429	612005
SM3364	Blakebillend, cairn 335m E of Williams Rig	351419	606226
SM3373	Mid Hill, fort & settlement 700m NW of Adderstonshiels	351407	609763
SM3412	Pleaknowe, fort & homestead 430m NW of	352058	606836
SM3468	The Catrail, linear earthwork, W of Leap Burn to 100m E of Langside Burn	351174	602778
SM3496	Hawkhass Linn, earthwork 520m NE of Hawkhass House	349310	602842
SM3497	Cairn Sike, earthwork 1220m NE of Hawkhass House	349461	603536
SM3765	Kilnsike Tower	363422	613008
SM3848	Dykeraw Tower, Southdean	362832	609058
SM4007	Riccarton Tower	354401	595810
SM4434	Whisgills, long cairn and standing stones 2230m W of	343000	583899
SM6600	Martinlee Plantation, homestead NW of Martinlee Sike	365617	607947
SM6636	Martinlee Plantation, enclosure 140m N of	365703	608012
SM6637	Wattie's Spindles, pele house and associated buildings	366747	609054
SM6638	Chapel Knowe, farmstead 100m WSW of	367052	608912
SM6833	Overton Tower	368498	612844
SM7033	Fulton Tower	360548	615811
SM7034	Southdean Church	363141	609162
SM7144	Steel Knowe, medieval and later settlements and field systems	365246	608800
SM10735	Stony Law, fort	373006	611573
SM10742	Goshen Hill, palisaded settlement	372112	610495
SM10743	Heugh Law, fort	374526	611770
SM10744	Loddan, palisaded settlement 350m NW of summit	375310	611299
SM13755	Stobs Camp rifle ranges, 650m W, 330m WNW and 450m SSE of White Knowe	349475	607169

HES Reference	Title	Easting	Northing
SM13767	Stobs Camp, prisoner of war camp and cemetery, military training camp and trenches, Stobs	349958	609378
SM13769	Blakebillend, tracked target range, 750m WNW and 570m and 740m NW of Penchrise Peel	351030	605979
SM90161	Hermitage Castle, castle, chapel, enclosures, deer trap, park boundary and farmstead	349851	596083
CA619	Newcastleton Conservation Area	348343	587543
LB2045 (B)	Old Church In Policies Of Cavers House.	354018	615585
LB2051 (B)	Cavers House	354060	615455
LB4238 (B)	Dinlabyre Aisle, Dinlabyre, Nr Steele Road	352969	592218
LB4254 (C)	Newcastleton, Douglas Square, Pant Well	348333	587576
LB4260 (C)	Hermitage Bridge	349594	589574
LB4261 (C)	Powisholm Bridge	350252	589579
LB6624 (B)	Castleton Old Parish Church Including Schoolroom, Old Bankend House, Mounting Block And Boundary Walls	349710	589482
LB8371 (B)	Harwood	356530	608320
LB8372 (B)	Cleugh Head Farm	359353	610151
LB8396 (C)	Hobkirk Parish Church (Church Of Scotland) With Graveyard, Boundary Walls, Gates And Gatepiers	358722	610895
LB8408 (B)	Dolphinston With Outbuildings, Boundary Wall And Gatepiers	368296	615019
LB13369 (A)	Ferniehurst Castle With Arched Gateway, Garden Walls And Outbuildings	365235	617969
LB13370 (A)	Ferniehurst Castle Visitor Centre (Former Chapel)	365255	618022
LB15457 (B)	Abbotrule Church	361162	612749
LB15458 (B)	Stables, Abbotrule	360974	612891
LB15461 (C)	Southdean Bridge	362977	609237
LB19748 (B)	Remains Of Old Church In Graveyard At Chesters.	362647	610704
LB49195 (C)	Chesters, Southdean Parish Church (Church Of Scotland) Including Boundary Wall	362415	610896
LB49311 (B)	Whitrope Tunnel, Viaduct And Culvert	352451	601183

HES Reference	Title	Easting	Northing
LB50111 (B)	Hobkirk, Nether Swansheil House And Steading (Former Hobkirk Manse) Including Boundary Walls	358584	610628
LB51011 (C)	Newcastleton, 14 Douglas Square	348287	587572
LB51012 (C)	Newcastleton, 16 Douglas Square, The Grapes Hotel	348298	587597
LB51013 (C)	Newcastleton, 4 South Hermitage Street (Corner With Union Street), Buccleuch Centre	348296	587470
LB51014 (C)	Newcastleton, 48 South Hermitage Street (Corner With Langholm Street/Douglas Square), Bank Of Scotland	348290	587520
LB51762 (C)	Riccarton Mill, Former Granary And Byre, And Kiln	354947	594977

6.4.5. Within 10km (England):

Table 6-5 - Scoped in Assets Within 10 Km (England)

HE List Entry	Name	Easting	Northing
1009670	Bran's Walls Romano-British enclosed settlements, 400m SSE of Kielder Head	366752	597639
1016089	Prehistoric enclosure, field system and cairnfield, and medieval and early post-medieval settlements and field systems 600m SSW of Blacklyne House	354215	580915
1016397	Unfinished high cross shaft on Long Bar 580m north east of Todcrag Loch	359269	580652
1019530	Stonehouse Tower bastle	346303	580418
1087509 (II)	Old Hall Farmhouse	345119	579057
1087518 (II)	Church Of St Nicholas	345476	577948
1205497 (II)	Outbuilding To South West Of Stonegarthside Hall	348019	581808
1280673 (II)	Cumcrook And Adjoining Barn	350299	574983
1280716 (II)	Barn To South East Of Old Hall Farmhouse	345127	579032
1335605 (II*)	Stonegarthside Hall	348039	581860

LIKELY SIGNIFICANT EFFECTS

6.4.6. The likely significant effects that would be taken forward for assessment in the EIA Report are summarised in **Table 6-6**.

Table 6-6 - Likely Significant Historic Environment Effects

Stage of development	Potential effects arising through disturbance	Potential effects arising through change to setting
Construction	Disturbance of archaeological remains within the Site whether directly or indirectly through the construction of access tracks, turbines, movement of plant and associated infrastructure or borrow pits.	Visual and audible disturbance of nearby heritage assets through plant movement and construction operations.
Operation	None	The Proposed Development would be a perceptual element in views from and to nearby heritage assets.
Decommissioning	None	Visual and audible disturbance of nearby heritage assets through plant movement and decommissioning operations.

6.5 CUMULATIVE EFFECTS

6.5.1. Although individual developments may not cause significant effects on their own, they may do so when they are combined with others in the surrounding area. In order to establish the potential for cumulative effects upon identified heritage assets, existing, consented and proposed wind farms in the LVIA cumulative Study Area would be considered in the assessment.

6.6 MITIGATION

6.6.1. Data gathered for both designated and non-designated heritage assets would be made available to the design team to consider. This would ensure avoidance of physical impacts upon the heritage assets within the Site, and also to identify areas of higher sensitivity, where there are high concentrations of designated assets which may be subject to settings effects.

6.7 CONSULTATION

6.7.1. It is anticipated that consultation with HES, Historic England, SBC and NCC where appropriate would be undertaken during the course of the assessment (for example, to agree upon the finalised selection of heritage assets for further assessment).

6.8 SUMMARY OF EFFECTS

6.8.1. A summary of potential effects for direct, indirect and cumulative effects upon the historic environment would be provided, together with details of any embedded mitigation for these and/or potential for further mitigation to occur, including but not limited to agreed programmes of archaeological investigation.

7 ORNITHOLOGY

7.1 INTRODUCTION

7.1.1. This section of the Scoping Report describes the baseline conditions, relevant guidance and legislation, proposed scope of assessment and methodology, proposed mitigation and identifies potential impacts of the Proposed Development in relation to ornithological features.

7.2 BASELINE CONDITIONS

7.2.1. Baseline ornithology conditions have been/would be established from the following sources:

- Results of ornithology surveys undertaken between October 2021 and March 2024;
- Information provided by the Lothian and Borders Raptor Study Group (LBRSG) – a request would be sent to them following the end of the 2023 breeding season;
- Information provided by the South Scotland Golden Eagle Project (SSGEP) – a request would be sent to them following the end of the 2023 breeding season and
- A desk study to confirm the location and qualifying features of designated sites within potential zones of influence of the Proposed Development.

BASELINE SURVEYS

7.2.2. The following surveys have been undertaken to date (May 2023) or would be completed by March 2024. All surveys are undertaken in line with the appropriate guidance (SNH 2017⁶⁵, Hardey et al. 2013⁶⁶, Gilbert et al. 1998⁶⁷) and survey areas are detailed below. The survey areas were created using survey-specific buffers based on the Proposed Development developable area provided at the time of survey commencement. It should be noted that the Proposed Development comprises three clusters: Newcastleton, Wauchope West and Wauchope East.

- Flight activity surveys (minimum of 36 hours per season as per SNH 2017⁶⁵);
 - Newcastleton: ten Vantage Point (VP) locations (**Figure 7.1**), October 2021 to August 2023;
 - Wauchope East: nine VP locations (**Figure 7.2**), October 2021 to August 2023;
 - Wauchope West: four VP locations (**Figure 7.3**), April 2023 to March 2024.
- Scarce breeding bird surveys: 2km survey area (**Figure 7.4**), monthly from March to August 2022 (Newcastleton and Wauchope East) and March to August 2023 (Newcastleton, Wauchope East and Wauchope West);
- Black grouse surveys: 1.5km survey area (**Figure 7.4**), April and May 2022 (Newcastleton and Wauchope East) and April and May 2023 (Wauchope West); and
- Nightjar surveys: 500m survey area (**Figure 7.4**), June and July 2022 (Newcastleton and Wauchope East) and June and July 2023 (Newcastleton, Wauchope East and Wauchope West).

⁶⁵ Scottish Natural Heritage (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms.

⁶⁶ Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. and Thompson, D. (2013). Raptors: a field guide for surveys and monitoring (3rd edition). The Stationery Office, Edinburgh.

⁶⁷ Gilbert, G., Gibbons, D. W. and Evans, J. (1998). Bird Monitoring Methods. RSPB, Sandy.

7.2.3. Considering the forested nature of the Site, it was considered to be of limited suitability for breeding waders. As such, no moorland breeding wader surveys were undertaken (as agreed in consultation with NatureScot, refer to **Section 7.7**).

DESIGNATED SITES

7.2.4. There are no designated sites with ornithological interests within the Site. One SPA and three SSSI's with ornithological features are within 20km of the Site as listed below and detailed on **Figure 7.5**.

- Langholm – Newcastleton Hills SPA (underpinned by the Langholm – Newcastleton Hills SSSI), approximately 5.3km from the nearest part (Newcastleton) of the Site and designated for breeding hen harrier;
- Kielderhead Moors: Carter Fell to Peel Fell SSSI, adjacent to the Site Boundary (Wauchope East) and designated for a breeding bird assemblage;
- Kielderhead and Emblehope Moors SSSI, approximately 1.5km from the nearest part (Wauchope East) of the Site and designated for a breeding bird assemblage; and
- River Eden and Tributaries SSSI, approximately 17.1km from the nearest part (Newcastleton) of the Site and designated for wintering whooper swan and a breeding bird assemblage.

7.2.5. Based on the guidance from NatureScot (SNH 2016a⁶⁸) regarding connectivity with SPAs, there is considered to be no connectivity between the designations listed above and the Site, for any species. Furthermore, the Proposed Development would be entirely situated within commercial plantation operated by FLS, whereas the above designated sites are open moorland and therefore have qualifying features associated with open moorland/upland habitats.

ORNITHOLOGICAL ACTIVITY

7.2.6. Flight activity surveys between October 2021 and March 2023 recorded 18 target species (barnacle goose, bean goose, curlew, golden eagle, golden plover, goshawk, greylag goose, hen harrier, herring gull, hobby, merlin, osprey, pallid harrier, peregrine falcon, pink-footed goose, red kite, whooper swan and woodcock), collectively accounting for 509 flights which may be included in the Collision Risk Model (CRM), depending on their location in relation to the final turbine layout.

7.2.7. Scarce⁶⁹ breeding bird surveys during the 2022 breeding season recorded goshawk, hen harrier, merlin, osprey, peregrine falcon and red kite. Goshawk were identified to be breeding at five locations within the Site, hen harrier at one location on the edge of the Site/within the 2km survey area, and peregrine falcon at one location to the north of the Site. Osprey also attempted to breed within the Newcastleton area of the Proposed Development however the pair originally built a nest on a timber stack which consequently failed⁷⁰. The same pair attempted on two more occasions to build nests however neither were completed/suitable.

⁶⁸ Scottish Natural Heritage (2016a). Assessing connectivity with Special Protection Areas (SPAs).

⁶⁹ Scarce breeding birds are those listed on Annex 1 of the EU Birds Directive or Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and in the case of the Development consists of any raptor and owl species listed on either Annex 1 or Schedule 1.

⁷⁰ FLS were notified immediately on discovery of this nest and the forestry road blocked to prevent disturbance. A licenced surveyor continued to monitor the nest and when it was abandoned the timber stack was removed.

7.2.8. No black grouse were recorded during the 2022 breeding season surveys. Nightjar were recorded in low numbers during the 2022 breeding season surveys, with one territory identified at Newcastleton and two at Wauchope East.

7.3 METHODOLOGY

LEGISLATION, POLICY AND GUIDANCE

7.3.1. The key sources of guidance and legislation relating to ornithology are listed below. Planning policies of relevance to EIA including this assessment are provided in **Section 4**.

Legislation

7.3.2. The assessment would be undertaken in line with the following European legislation and guidance:

- Directive 2009/147/EC on the Conservation of Wild Birds (the EU Birds Directive)⁷¹;
- Directive 92/43/EEC on Conservation of Natural Habitats and of Wild Fauna⁷² and Flora (as amended) (the Habitats Directive); and
- Environmental Impact Assessment Directive 2014/52/EU⁷³ (the EIA Directive).

7.3.3. The following national legislation, which has recently been amended as a consequence of EU exit (Scottish Government 2019⁷⁴, 2020⁷⁵), would also be considered as part of the ornithology assessment:

- The Wildlife and Countryside Act 1981⁷⁶ (as amended);
- The Conservation (Natural Habitats &c.) Regulations 1994 (as amended) (The Habitats Regulations);
- The Nature Conservation (Scotland) Act 2004⁷⁷ (as amended);
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017⁷⁸ (the EIA Regulations);
- Scottish Government (2000⁷⁹). Planning Advice Note 60: Planning for Natural Heritage; and

⁷¹ Directive 2009/147/EC of the European Parliament and of the Council. Available at: <https://www.legislation.gov.uk/eudr/2009/147/contents> (accessed May 2023)

⁷² Scottish Government (1992). Council Directive 92/43/EEC. Available at: <https://www.legislation.gov.uk/eudr/1992/43/contents> (accessed May 2023)

⁷³ Scottish Government (2014). Directive 2014/52/EU of the European Parliament and of the Council. Available at: <https://www.legislation.gov.uk/eudr/2014/52> (accessed May 2023)

⁷⁴ Scottish Government (2019). The Town and Country Planning and Electricity Works (EU Exit) (Scotland) (Miscellaneous Amendments) Regulations 2019. Available at: <https://www.legislation.gov.uk/ssi/2019/80/introduction/made> (accessed May 2023)

⁷⁵ Scottish Government (2020). EU Exit: The Habitats Regulations in Scotland. Available at: <https://www.gov.scot/publications/eu-exit-habitats-regulations-scotland-2/> (accessed May 2023)

⁷⁶ Scottish Government (1981). Wildlife and Countryside Act 1981. Available at: <https://www.legislation.gov.uk/ukpga/1981/69> (accessed May 2023)

⁷⁷ Scottish Government (1994) The Conservation (Natural Habitats, &c.) Regulations 1994. Available at: <https://www.legislation.gov.uk/uksi/1994/2716/contents> (accessed May 2023)

⁷⁸ Scottish Government (2017). The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. Available at: <https://www.legislation.gov.uk/ssi/2017/101/contents> (accessed May 2023)

⁷⁹ <https://www.gov.scot/publications/pan-60-natural-heritage/> (accessed May 2023)

- Scottish Government (2017⁸⁰). Planning Advice Note 1/2013-Environmental Impact Assessment, Revision 1.0.

Policy

7.3.4. The assessment would consider the relevant aspects of Scottish Planning Policy, PANs and other relevant guidance. Of relevance to ornithology are the following policies:

- UK Post-2010 Biodiversity Framework (2012⁸¹);
- Scottish Biodiversity Strategy: It's in Your Hands (2004⁸²)/2020 Challenge for Scotland's Biodiversity (2013⁸³);
- Scottish Government (2000⁸⁴). Planning Advice Note 60: Planning for Natural Heritage;
- Scottish Government (2017⁸⁵). Planning Advice Note 1/2013-Environmental Impact Assessment, Revision 1.0;
- NPF4 (February 2023⁸⁶);
- The Scottish Biodiversity List⁸⁷; and
- Scottish Biodiversity Strategy to 2045: Tackling the Nature Emergency in Scotland (2023⁸⁸), note that this is still in draft form with consultation taking place in Spring 2023.

Guidance

7.3.5. Guidance on the following topics would also be considered:

- Environmental impact assessment: NatureScot (SNH 2016b⁸⁹, 2018a⁹⁰, 2018b⁹¹, NatureScot 2020a⁹²), CIEEM (2018⁹³), SERAD (2000⁹⁴);

⁸⁰ Scottish Government (2017). Planning Advice Note 1/2013 – Environmental Impact Assessment, Revision 1.0. Scottish Government, Edinburgh.

⁸¹ JNCC and Defra (on behalf of the Four Countries' Biodiversity Group) (2012). UK Post-2010 Biodiversity Framework. JNCC, Peterborough.

⁸² Scottish Executive (2004). Scottish Biodiversity: It's In Your Hands. Scottish Executive, Edinburgh.

⁸³ The Scottish Government (2013). 2020 Challenge for Scotland's Biodiversity. The Scottish Government, Edinburgh.

⁸⁴ <https://www.gov.scot/publications/pan-60-natural-heritage/> (accessed May 2023)

⁸⁵ Scottish Government (2017). Planning Advice Note 1/2013 – Environmental Impact Assessment, Revision 1.0. Scottish Government, Edinburgh.

⁸⁶ <https://www.gov.scot/publications/national-planning-framework-4/documents/> (accessed May 2023)

⁸⁷ <https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy-and-cop15/scottish-biodiversity-list> (accessed May 2023)

⁸⁸ <https://www.gov.scot/publications/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland/> (accessed March 2023)

⁸⁹ Scottish Natural Heritage (2016b). Environmental Statements and Annexes of Environmentally Sensitive Bird Information; Guidance for Developers, Consultants and Consultees. Version 2.

⁹⁰ Scottish Natural Heritage (2018a). Assessing significance of impacts from onshore windfarms on birds out with designated areas. Version 2.

⁹¹ Scottish Natural Heritage (2018b). Environmental Impact Assessment Handbook – Version 5: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment process in Scotland.

⁹² NatureScot (2020a). General pre-application and scoping advice for onshore wind farms.

⁹³ CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.

⁹⁴ SERAD (Scottish Executive Rural Affairs Department) (2000). Habitats and Birds Directives, Nature Conservation; Implementation in Scotland of EC Directives on the Conservation of Natural Habitats and of Wild Flora and Fauna and

- Designated sites: NatureScot (SNH 2016a⁶⁸), European Commission (2010⁹⁵);
- Collision modelling: NatureScot (SNH 2000⁹⁶, 2018c⁹⁷), Band *et al.* (2007⁹⁸);
- Cumulative assessments: SNH (2018d⁹⁹);
- Bird populations/species specific guidance: Stanbury *et al.* (2021¹⁰⁰), NatureScot (SNH 2014¹⁰¹, 2017⁶⁵), Pearce-Higgins (2021¹⁰²); and
- Construction and birds: NatureScot (SNH 2016c¹⁰³).

ASSESSMENT METHODOLOGY

- 7.3.6. The assessment would consider the potential direct, indirect, and cumulative impacts that the construction and operation of the Proposed Development could have on Important Ornithological Features (IOFs, as per CIEEM 2018⁹³ guidance). The assessment would be supported by a technical appendix that would include details of survey methodologies, all survey data and outputs from any collision risk modelling.
- 7.3.7. The assessment would include the following elements:
- Baseline conditions;
 - Scoping in/out of ornithological features and impacts;
 - Assessment of potential impacts during construction, operational and decommissioning phases;
 - Mitigation;
 - Residual impacts;
 - Cumulative impact assessment; and
 - Summary of impacts.
- 7.3.8. Impacts on IOFs would be assessed in relation to the species' reference population, conservation status, range and distribution. The assessment of potential impacts would follow guidelines published by CIEEM (2018⁹³) and NatureScot (SNH 2018a⁹⁰, 2018b⁹¹).

the Conservation of Wild Birds ("the Habitats and Birds Directives"). Revised Guidance Updating Scottish Office Circular No 6/1995

- ⁹⁵ European Commission (2010). Natura 2000 Guidance Document 'Wind Energy Developments and Natura 2000'. European Commission, Brussels.
- ⁹⁶ Scottish Natural Heritage (2000). Windfarms and birds: calculating a theoretical collision risk assuming no avoidance action.
- ⁹⁷ Scottish Natural Heritage (2018c). Avoidance Rates for the onshore SNH Wind Farm Collision Model. Version 2.
- ⁹⁸ Band, W., Madders, M., and Whitfield, D.P. (2007). Developing field and analytical methods to assess avian collision risk at wind farms. In: Janss, G., de Lucas, M. & Ferrer, M (eds.) Birds and Wind Farms. Quercus, Madrid. 259-275.
- ⁹⁹ Scottish Natural Heritage (2018d). Assessing the cumulative impacts of onshore wind farms on birds.
- ¹⁰⁰ Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win, I. (2021). Birds of Conservation Concern 5: The population status of birds in the UK, Channel Islands and Isle of Man and second ICUN Red List assessment of extinction risk for Great Britain. *British Birds* 114: 723-747.
- ¹⁰¹ Scottish Natural Heritage (2014). Assessing impacts to pink-footed and greylag geese from small-scale wind farms in Scotland.
- ¹⁰² Pearce-Higgins, J.W. (2021). Climate Change and the UK's Birds. British Trust for Ornithology Report, Thetford, Norfolk.
- ¹⁰³ Scottish Natural Heritage (2016c). Dealing with construction and birds.

7.3.9. The assessment would involve the following process:

- Identifying potential impacts of the Proposed Development;
- Considering the likelihood of occurrence of potential impacts;
- Defining the nature conservation importance and conservation status of relevant populations for each IOF to determine overall sensitivity;
- Establishing the magnitude of the likely impact (both spatial and temporal) on each IOF;
- Based on the above information, making a judgement as to whether or not the consequent impact is significant with respect to the EIA Regulations;
- If a potential impact is determined to be significant, suggesting measures to mitigate or compensate the impact where required;
- Considering opportunities for enhancement where appropriate; and
- Concluding residual impacts after mitigation, compensation, or enhancement.

7.3.10. Where appropriate, the assessment would take into consideration specific measures of analysis, most likely collision risk modelling using the Band *et al.* (2007⁹⁸) model.

STUDY AREA

7.3.11. The EIA Report would incorporate the following study areas which would all be buffered from the finalised turbine layout (and access track if relevant/required):

- Designated sites: the Proposed Development and a 20km Study Area (SNH 2016a⁶⁸);
- Collision risk modelling: the results of the flight activity surveys would be used to inform collision risk modelling. A Collision Risk Analysis Area (CRAA) would be created using GIS Delaunay triangulation¹⁰⁴ from the proposed turbine locations to create a wind farm area which would then be buffered by 500m (as per SNH 2017⁶⁵);
- Scarce⁶⁹ breeding birds: Proposed Development and a 2km Study Area (800m for access tracks) (SNH 2017⁶⁵);
- Black grouse: Proposed Development and a 1.5km Study Area (750m for access tracks) (SNH 2017⁶⁵); and
- Cumulative assessment: as per SNH (2018d¹⁰⁰), the Natural Heritage Zone (NHZ) level is considered practical and appropriate for breeding species not connected to designated sites (for the Site, the NHZ would be the Border Hills, NHZ 20).

7.4 POTENTIAL IMPACTS

7.4.1. The assessment would consider the potential impacts associated with construction, operation and decommissioning of the Proposed Development as detailed below. Where appropriate, these construction and operational impacts would also be considered in a cumulative assessment.

¹⁰⁴ Delaunay triangulation is a form of mathematical/computational geometry where a given set of points (in this case the turbine locations) are all joined to create discrete triangles. Further information is available here: <https://uk.mathworks.com/help/matlab/math/delaunay-triangulation.html>

7.4.2. Construction/Decommissioning Impacts:

- Temporary and permanent habitat loss/alteration/fragmentation associated with the Proposed Development infrastructure, including loss of nesting, lekking, roosting or foraging habitat; and
- Visual and noise disturbance associated with construction activities.

7.4.3. Operational Impacts:

- Displacement from nesting, lekking, roosting or foraging habitats around operational turbines and other permanent infrastructure, including barrier effects;
- Risk of collisions with operational wind turbine blades or any other permanent infrastructure; and
- Impacts relating to turbine lighting.

FEATURES/IMPACTS SCOPED IN OR OUT OF ASSESSMENT

Scoped out Features/Impacts

7.4.4. On the basis of baseline data, experience from other relevant projects and policy guidance or standards (e.g., CIEEM 2018⁹³, SNH 2018b⁹¹), the following species would be ‘scoped out’ since significant impacts are unlikely:

- Common and/or low conservation species not recognised in statute as requiring special conservation measures (i.e., not listed as Annex 1/Schedule 1 species);
- Common and/or low conservation species not included in non-statutory lists (i.e., not listed as Amber or Red-listed BoCC species), showing birds whose populations are at some risk either generally or in parts of their range; and
- Passerine species, not generally considered to be at risk from wind farm developments (SNH 2017⁶⁵), unless being particularly rare or vulnerable at a national level.

7.4.5. Subject to the results of the collision risk modelling, effects relating to any target species not identified to be breeding within the relevant study area would be scoped out of the assessment.

7.4.6. Considering the review of designated sites within 20km of the Proposed Development (**paragraph 7.2.5**), there is considered to be no potential for a likely significant effect on the Langholm – Newcastleton Hills SPA, Carter Fell to Peel Fell SSSI, Kielderhead and Emblehope Moors SSSI, or River Eden and Tributaries SSSI as a result of the Proposed Development and it is proposed these designated sites would be scoped out of the assessment.

Scoped in Features/Impacts

7.4.7. Whilst it is not possible to definitively scope out specific target species from the assessment prior to undertaking collision modelling and a review of the ornithological baseline against the final design, considering the information available regarding the species assemblage and distribution at the Site and on the basis of professional experience, it is considered that goshawk, hen harrier, nightjar and osprey are likely to be the species considered as IOFs and therefore would be scoped into the assessment.

7.5 CUMULATIVE EFFECTS

- 7.5.1. An assessment of cumulative effects would be undertaken following published guidance (SNH 2018d⁹⁹). Cumulative effects on each IOF relevant to the Proposed Development would be assessed in relation to other projects and activities subject to the EIA process within a relevant search area and their effects on a relevant reference population; for example, at an NHZ level for breeding species.

7.6 MITIGATION

- 7.6.1. Significant impacts on birds would be avoided/minimised where possible during the design layout process, based on the locations of known nest, roost and lek sites, key foraging areas, and likely sensitivities of IOFs. Good practice (SNH 2016c¹⁰³) during construction and operation of the Proposed Development will also be implemented (and the assessment undertaken on this basis). This would include the following:
- A Bird Disturbance Management Plan (BDMP) would be implemented as part of a Construction Environmental Management Plan (CEMP) or similar during the construction phase, to ensure that all reasonable precautions are taken to adhere to the relevant wildlife legislation;
 - Pre- and during-construction surveys carried out by an Ecological Clerk of Works (ECoW), or suitably qualified ornithologist would take place as part of the BDMP; and
 - A Biodiversity Enhancement Management Plan (BEMP) would be developed for the operational phase and agreed with consultees, to mitigate or enhance habitat for IOFs and to provide wider biodiversity improvements.
- 7.6.2. Where unmitigated significant impacts on IOFs are identified, additional measures to prevent, reduce and where possible offset these adverse impacts would be proposed, in order to conclude a non-significant residual impact.

7.7 CONSULTATION

- 7.7.1. Preliminary consultation with NatureScot was undertaken in March 2022 regarding the baseline survey scope, in particular breeding wader and black grouse surveys. Considering the forested nature of the Site (of limited suitability for breeding waders), it was proposed that no breeding wader surveys would be undertaken. For black grouse, a review of black grouse data in the area provided limited evidence of black grouse within the Site and in combination with the low suitability of the Site for black grouse (commercial forestry), it was proposed that no black grouse surveys would be undertaken.
- 7.7.2. A response was provided by NatureScot (email from Matt Burnett, Renewable Energy Casework Adviser, dated 28/03/2022) that recommended black grouse surveys should be carried out in the first year with no requirement for a second year of surveys should no black grouse be recorded. In their response, NatureScot also recommended that two years of surveys should be undertaken (given the scale of the Site), that it would be worth liaising with the SSGEP and a note that *"minimising the number of VPs located within the turbine envelope + buffer should also be an aim of their design. If this isn't possible the EIA should note this as a limitation of the study"*.

7.8 SUMMARY OF EFFECTS

- 7.8.1. A summary of potential effects for direct, indirect and cumulative effects upon ornithology would be provided, together with details of any embedded mitigation for these and/or potential for further mitigation to occur.

8 ECOLOGY (INCLUDING PEAT)

8.1 INTRODUCTION

8.1.1. The terrestrial ecology assessment will consider the potentially significant effects¹⁰⁵ on terrestrial and freshwater habitats and legally protected and notable species that may arise from the construction, operation and decommissioning of the Proposed Development. This section of the Scoping Report describes the methodology to be used within the EIA, an overview of the baseline conditions at the Site, the datasets to be used to inform the EIA, and the likely significant effects to be considered within the EIA.

8.2 BASELINE CONDITIONS

DATA SOURCES

Desk-study

8.2.1. A desk-based data gathering exercise would be undertaken to obtain existing information relating to relevant ecological features, these being: statutory and non-statutory biodiversity sites; habitats and species of principal importance, legally protected and controlled species, and other conservation notable species that have been recorded over the previous 10 years. The following data sources would be consulted as part of the desk-study:

- NatureScot Sitelink¹⁰⁶ Information Service for designated sites;
- Ecological data records would be sought from The Wildlife Information Centre (TWIC)¹⁰⁷;
- Ecological data records would be requested from the FLS Environment Team; and
- Any other relevant Environmental Statements / EIA reports or technical reports from other developments or proposed developments in the local area.

Study Area

8.2.2. The study area for terrestrial ecology comprises the area over which all desk-based and field data would be gathered to inform the terrestrial ecology scoping assessment presented in this section. Due to the presence of multiple ecological features¹⁰⁸ and many potential effects, the level and type of data collection varies across the study area. The 'Study Area' would comprise:

- All land within the Proposed Work Areas;

¹⁰⁵ Other technical chapters use "likely significant effects" and "potential likely significant effects" to accord with the EIA Regulations 2017. Within the terrestrial ecology chapter, the term "potentially significant effects" is used as it accords with CIEEM guidance to describe effects that have the potential to be significant prior to their assessment (i.e., until the end of the "scope of the assessment"), and the term "likely significant effects", only once assessment has determined that they would indeed be significant. This is not to be confused with Likely Significant Effects (LSEs) when used in the context of the Habitats Regulations Assessment.

¹⁰⁶ <https://sitelink.nature.scot/home>

¹⁰⁷ <http://www.wildlifeinformation.co.uk/>

¹⁰⁸ Ecological feature is used within Ecological Impact Assessment (EclA) published by the Chartered Institute of Ecology and Environmental Management (2018) in place of the term 'terrestrial ecology receptor'. The term ecological feature is used throughout this chapter.

- Statutory sites designated under international conventions or European legislation and under national legislation; and available bat records – within the Site and a 10km Study Area buffer;
- Locally designated sites, Scottish Biodiversity List (SBL) species, Red-Listed species; and legally protected and legally controlled species – within the Site and a 2km Study Area buffer.

8.2.3. The extent of the areas of search are based on best practice guidance and a high-level overview of the types of ecological features present, and the potential effects that could occur. The Study Areas are defined on a precautionary basis to ensure that the Zones of Influence¹⁰⁹ (Zoi) relevant to all ecological features are covered during baseline data collection activities.

Proposed Field Surveys

8.2.4. Field surveys would follow best practice guidance and would include the following:

- **Extended Phase 1 Habitat Survey (EP1HS)** – An extended Phase 1 habitat survey would be completed within the Proposed Work Areas following the standard habitat survey method described in the Handbook for Phase 1 Habitat Survey: a technique for environmental audit¹¹⁰. Habitats within 250m of the Site boundary would also be mapped where accessible. An extended Phase 1 habitat survey would characterise the habitats present on the Site and include an initial assessment of habitat suitability to support legally protected species, including badger, herptile species including Great Crested Newt (GCN), and a bat roost suitability assessment.
- **National Vegetation Classification (NVC) Survey** – NVC surveys would be undertaken between April and August where the presence of Annex 1 habitat types¹¹¹, Scottish Biodiversity List (SBL)/UKBAP¹¹² priority habitats, or potential Groundwater Dependent Terrestrial Ecosystems (GWDTEs) have been identified, following completion of desk study and EP1HS. Surveys would be undertaken within 250m of Proposed Work Areas.
- **Aquatic Mammal Survey** – Otter and water vole surveys would be undertaken along all watercourses and water bodies within the Proposed Work Areas (and up to a maximum of 250m out with this area where accessible). The surveys would be carried out in accordance with standard methodologies (e.g., Chanin, 2003¹¹³; and Dean *et al* 2016¹¹⁴).
- **Fish Habitat Survey** – The Site lies within the watershed of the River Tweed which is considered of high sensitivity at the national level for wild fish stocks (via direct acute pollution or siltation).

¹⁰⁹ Zones of Influence (ZOIs) are the areas within which potentially significant effects associated with the Project may be identified for a particular ecological feature.

¹¹⁰ JNCC (2010). *Handbook for Phase 1 Habitat Survey: a technique for environmental audit*.

¹¹¹ Annex 1 habitats are those habitats listed on Annex 1 of the Habitats Directive and for which Special Areas of Conservation are selected. The Conservation (Natural Habitats and c.) Regulations 1994 (as amended) (i.e., the Habitat Regulations) transpose Council Directive 92/43/EEC of May 1992 on the conservation of natural habitats and wild fauna and flora (i.e., The EC Habitats Directive) into Scottish Law.

¹¹² United Kingdom Biodiversity Action Plan - <https://jncc.gov.uk/our-work/uk-bap-priority-species/>

¹¹³ Chanin, P. (2003). Monitoring the Otter *Lutra lutra*. Conserving Nature 2000 River Monitoring Series No 10. English Nature: Peterborough

¹¹⁴ Dean, M., Strachan, R., Gow, D. and Andrews, R., (2016). The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series). Eds. Fiona Mathews. and Paul Chanin. The Mammal Society, London.

Requirements for fisheries and freshwater invertebrate surveys would be scoped based on the connectivity and potential suitable watercourses within the Study Area to support potential fisheries interests/risks (e.g., including salmon, lamprey, trout, freshwater pearl mussel (FWPM) etc). Survey scope would be determined following further desk study, field survey and consultation as necessary.

- **Bat Surveys** - Survey effort will adhere to NatureScot (2021) *Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation*^[1].

A habitat assessment would be undertaken alongside the EP1HS walkover to observe, assess and record any habitats suitable for bats to commute and forage. Any areas with high bat potential within 250m of the Proposed Work Areas would be investigated to identify potentially important roost sites. If any potential roosts are identified, these may need to be subject to internal roost surveys and/or external emergence surveys.

Based on an initial site risk assessment, the scale of the development, comprising of up to 80 turbines up to 250m in height (and presence of other wind developments within 5km) this is assessed as 'Large' project size. The site is dominated by commercial coniferous plantation and the surrounding habitats are agricultural and arable in nature. Broadleaf trees and occasional farm buildings are present which may provide potential roost features. In addition, the presence of woodland, watercourses and occasional hedgerows could potentially provide important foraging and commuting corridors.

The Site is therefore assessed at this stage as being of potential Medium risk for bats. On this basis, ground-based monitoring using full spectrum static (SM4) bat detectors would be undertaken for at least 10 consecutive nights during Spring, Summer and Autumn seasons in accordance with stated best practice. Survey efforts will be focussed in those parts of the Site where turbines are most likely to be located.

CONSULTATION

- 8.2.5. It is anticipated that consultation with NatureScot, Scottish Borders Council (SBC) and the River Tweed Commission (TWC) would be undertaken during the EIA.

CURRENT BASELINE

- 8.2.6. A detailed description of the Site and its location can be found in **Section 2.1**.
- 8.2.7. The majority of the Site comprises commercial forestry within the Wauchope Forest and Newcastleton Forest. However, part of the River Tweed SAC (along with many tributaries) and the Kielderhead Moors: Carter Fell to Peel Fell SSSI are located within the Development Site boundary.
- 8.2.8. Other statutory sites within 10km of the Site and that are designated for their ecological interest, include:
- Borders Mires, Kielder Butterburn SAC;
 - Borders Wood SAC;
 - Whitelee Moor NNR;

^[1] [Bats and onshore wind turbines - survey, assessment and mitigation | NatureScot](#)

- Kielderhead NNR;
- Kielder Mires SSSI;
- Kielderhead and Emblehope Moors SSSI;
- Langholm – Newcastleton Hills SSSI;
- Cragbank and Wolfhopelee SSSI;
- Buckstruther Moss SSSI;
- Adderstonlee Moss SSSI;
- Hummelknoews Moss SSSI;
- Jedwater Woodlands SSSI;
- Allan Water, Hillhead SSSI;
- Kirton Burn Meadow SSSI;
- Lyne Woods SSSI;
- Lynnwood to Whitlaw Wood, Slitrig SSSI;
- River Tweed SSSI; and
- Whitlaw Bank to Hardies Hill SSSI.

- 8.2.9. Cragbank and Wolfhopelee SSSI is designated for the presence of ancient woodland. The SSSI is split into two sections, one of which lies adjacent to the Site. The Desk Study would identify the presence of any other ancient woodland sites within the search area.
- 8.2.10. Any other non-statutory sites within the search area that are designated for their ecological features would also be identified as part of the desk study.
- 8.2.11. NatureScot’s Carbon and Peatland Map¹¹⁵ indicates that the Site supports areas containing Class 1 peatland (nationally important peat) whilst much of the Site is dominated by Class 5 peatland (carbon-rich soils and deep peat but lacking dominant peatland habitats due [in this case] to the presence of commercial forestry). This indicates that open ground and rides within the commercial forest are likely to support Annex 1 habitats including blanket bog and heath).
- 8.2.12. Potential Groundwater Dependent Terrestrial Ecosystems (GWDTEs) are likely to be widespread throughout the Development site. These would probably be most associated with flushes, marshy grassland and rush pasture, although they additionally may be present in other locations.
- 8.2.13. Habitats within the Site are likely to support European Protected Species (EPS), such as otters and bats, as well as other legally protected species such as salmonids, water voles, red squirrels, pine marten and badgers. These legally protected species would be assessed within the EIA where survey methodologies adhere to recommended survey guidance.

¹¹⁵ [Carbon and Peatland 2016 map | NatureScot](#)

FUTURE BASELINE

- 8.2.14. According to SNH (2018)¹¹⁶, baseline studies should identify the existing processes of change in the environment, which are likely to influence the character of a site or its surrounds, so that any changes that are predicted to occur due to a project can be distinguished from those which are expected to occur anyway. The predicted future environmental conditions which would exist if a project did not materialise is known for EIA purposes as the 'do nothing scenario'.
- 8.2.15. Determining a future baseline draws upon information about the likely future use and management of the Site in the absence of development, known population trends (for species), climate change and any other proposed developments (consented or otherwise) that may act cumulatively with the Proposed Development components to affect ecological features.
- 8.2.16. The majority of the landscape across the Site and immediate environs is presently commercial forest surrounded by a mixture of agricultural arable and pasture. The 'do nothing scenario' would therefore likely be for the area to remain primarily unchanged if the Proposed Development did not go ahead.

8.3 SCOPE OF ASSESSMENT

POTENTIAL IMPORTANT ECOLOGICAL FEATURES

- 8.3.1. The detailed scope of assessment would be defined by the outcome of the desk study and habitat and species surveys as the EIA progresses. However, based on an initial desk study appraisal and professional judgement, the following Important Ecological Features (IEFs)¹¹⁷ are likely to be taken forward for further detailed assessment: Statutory and non-statutory designated sites, Annex 1 habitats (including peatland habitats), potential GWDTEs, otter, water vole, badger, bat, red squirrel, pine marten, salmonids and FWPM. Should any additional sensitive features be identified during the course of the surveys, these would be included within the assessment as appropriate.

LIKELY SIGNIFICANT EFFECTS

- 8.3.2. In line with the EIA Regulations 2017, the EIA for the Proposed Development would consider those impacts where there is a risk of a likely significant effect only. The following section draws on industry experience and expertise to identify those effect-receptor pathways that may potentially lead to a significant effect. Terrestrial ecology features have been identified where there is a potential for likely significant effects based on the activities associated with the Proposed Development, these are summarised in **Table 8-1**. The scoping assessment is based on a combination of an understanding of the Proposed Development, the likelihood of embedded environmental measures, baseline data collected to date, CIEEM guidance on Ecological Impact Assessment (2018), and professional judgement.

¹¹⁶ Scottish Natural Heritage (2018). Environmental Impact Assessment Handbook. Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment process in Scotland.

¹¹⁷ Important Ecological features are defined by CIEEM as "Ecological features requiring specific assessment within EclA. Ecological features can be important for a variety of reasons (e.g., quality and extent of designated sites or habitats, habitat / species rarity)".

Table 8-1 - Potentially Significant Ecology Effects

Activity	Change	Feature
Works close to watercourses including watercourse crossings	Loss or damage to habitat; Changes in hydrology; and Pollution events	Salmonids, FWPM, otter & water vole
Construction and decommissioning activities (earthworks, excavation)	Direct habitat loss	Annex 1 habitats ; SBL/ UKBAP Priority habitats
Construction and decommissioning activities (earthworks, excavation)	Changes in hydrology and Pollution events	GWDTEs, Salmonids, FWPM, otter & water vole
Construction and decommissioning activities (earthworks, excavation)	Loss or damage to habitat	Bats, badger
Operational wind turbines	Displacement, injury or death	Bats

8.4 ASSESSMENT METHODOLOGY

8.4.1. The assessment would be undertaken in line with the following legislation and guidance:

- Directive 92/43/EEC on Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) (Habitats Directive)¹¹⁸;
- Natura 2000 Guidance Document 'Wind Energy Developments and Natura 2000'¹¹⁹;
- The Nature Conservation (Scotland) Act 2004 (as amended)¹²⁰;
- The Wildlife and Countryside Act 1981 (as amended in Scotland)¹²¹;
- Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine¹²²;
- Scottish Borders Council Supplementary Planning Guidance for Biodiversity¹²³
- The Scottish Borders Local Biodiversity Action Plan¹²⁴;
- The Scottish Biodiversity List¹²⁵;

¹¹⁸ European Commission (1992). Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.

¹¹⁹ European Commission (2010). Natura 2000 Guidance Document 'Wind Energy Developments and Natura 2000'. Brussels: European Commission

¹²⁰ Nature Conservation (Scotland) Act 2004.

¹²¹ Wildlife and Countryside Act 1981. UK: The Stationery Office

¹²² Chartered Institute of Ecology and Environmental Management (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Winchester: Chartered Institute of Ecology and Environmental Management. Version 1.2 - Updated April 2022.

¹²³ [Planning guidance - Biodiversity | Scottish Borders Council \(scotborders.gov.uk\)](https://www.scotborders.gov.uk/planning-guidance-biodiversity)

¹²⁴ <https://www.scotborders.gov.uk/info/20013/environment/723/biodiversity>

¹²⁵ Scottish Natural Heritage (2005). Scottish Biodiversity List.

- Engineering in the water environment good practice guide: river crossings¹²⁶;
- Land Use Planning System SEPA Guidance Note 4¹²⁷;
- Habitats and Birds Directives, 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')¹²⁸;
- Environmental Impact Assessment Handbook¹²⁹; and
- Research and guidance on restoration and decommissioning of onshore wind farms¹³⁰.

METHODOLOGY FOR ASSESSING ECOLOGICAL FEATURES

- The generic project-wide approach to the assessment methodology is set out in **Chapter 3: EIA Process and Consultation**. This section describes how this methodology will be applied, and adapted as appropriate, in order to correspond with topic specific guidance (i.e., CIEEM, 2018).
- An Ecology EIA Report chapter would be produced that will summarise the findings of the desk study, surveys and consultation. This would form the baseline against which the potential impacts of the Proposed Development, alone and cumulatively with other wind farm developments, would be assessed, based on both the importance of ecological features and the nature and magnitude of the changes resulting from the Proposed Development. Any mitigation considered necessary would be identified and residual effects with this in place will be determined.
- The significance of the effects resulting from the Proposed Development would primarily be determined by the value of a given ecological feature and the magnitude of change.
- Adverse effects would be assessed as being significant if the favourable conservation status of an ecological feature would be lost as a result of the Proposed Development. Beneficial effects would be assessed as those where a resulting change from baseline improves the quality of the environment (e.g., increases species diversity, increases the extent of a particular habitat etc., or halts or slows down an existing decline).
- Conservation status is defined as follows (as per CIEEM, 2018):

"For habitats, conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and typical species within a given geographical area;

For species, conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area".

¹²⁶ SEPA (2010). Engineering in the water environment good practice guide – river crossings.

¹²⁷ SEPA (2010). Engineering in the water environment good practice guide – river crossings.

¹²⁸ Scottish Executive Rural Affairs Department (2000). Habitats and Birds Directives, 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'). Revised Guidance Updating Scottish Office Circular No 6/1995.

¹²⁹ Scottish Natural Heritage (2018). *Environmental Impact Assessment Handbook - Version 5: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment process in Scotland*.

¹³⁰ Scottish Natural Heritage (2013). Commissioned Report No. 591 Research and guidance on restoration and decommissioning of onshore wind farms.

- 8.4.2. The decision as to whether the conservation status of an ecological feature would alter would be made using professional judgement, drawing upon the information produced through the desk study, field survey and assessment of how each feature is likely to be affected by the Proposed Development.
- 8.4.3. A similar procedure would be used where designated sites may be affected by the Proposed Development, except that the focus will be on the effects on the integrity of each site, defined as:
"The coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified".
- 8.4.4. The assessment of effects on integrity draws upon the assessment of effects on the conservation status of the features for which the site has been designated. Where these features are not clearly defined, which is often the case for non-statutory biodiversity sites, it would be necessary to use professional judgement to identify the interest features or obtain additional information about the interest features from NatureScot, Scottish Wildlife Trust, SBC or those responsible for identifying these sites, so that sufficient information on which to base an assessment is available.

DESIGN OPTIMISATION AND MITIGATION

- 8.4.5. The Proposed Development layout would be informed by baseline ecology survey data, including NVC and species-specific surveys, to avoid or minimise direct and indirect impacts to IEFs. Where impacts cannot be avoided, they would be minimised and opportunities for mitigation, enhancement and compensation would be identified at an early stage for inclusion within a Habitat Management Plan (HMP). It is expected that this might include but would not necessarily be limited to, improvements to woodland habitat networks and peatland restoration works.

9 FORESTRY

9.1 INTRODUCTION

- 9.1.1. Forestry typically involves extensive areas of trees, grown as a commercial crop. In Scotland these are predominantly coniferous plantations of limited species diversity. In the UK there is a strong presumption against the permanent removal of woodland including forestry unless it addresses other environmental concerns or where it would achieve significant and clearly defined public benefits.
- 9.1.2. Forestry and Land Scotland (FLS) would be consulted during the development to ensure the proposed changes to forestry address the requirements of Scottish Government's Control of Woodland Removal Policy and other policy and guidance including NPF4 Policy 6 Forestry, woodland and trees, Scottish Borders LDP Policy EP13 Trees, Woodlands and Hedgerows, Scottish Borders Woodland Strategy, and the UK Forestry Standard.

9.2 BASELINE CONDITIONS

- 9.2.1. The majority of the Site comprises commercial forestry within the Wauchope Forest and Newcastleton Forest.
- 9.2.2. Wauchope Forest is largely a productive conifer plantation. The main species is Sitka spruce (comprising approximately 45% of the total land area) with other major conifers including Norway spruce, Scots pine and Lodgepole pine (comprising a combined ~12% of land area). Through active management, an increasing percentage of the species composition is native broadleaved, including birch and oak. The forest is managed by FLS within the Wauchope East Land Management Plan 2015-2025. The management plan includes formal recreation use, and the forest includes a network of trails used for walking, cycling and horse riding.
- 9.2.3. Newcastleton Forest is located to the south of Wauchope Forest and is predominately commercial conifer. The main species is Sitka spruce (comprising approximately 59% of the total land area) with other major conifers including Norway spruce, Scots pine and European larch (comprising a combined ~14% of total land area). Through active management, an increasing percentage of the species composition is native broadleaved including downy birch, rowan, oak, wych elm, alder, holly, aspen, bird cherry, and hazel. The forest is managed by FLS within the Newcastleton Land Management Plan (2020-2030). The management plan includes for formal recreation use including protection of the 7 Stanes mountain bike routes, Public Right of Way (PRoW) on Priest Hill, and National Cycle Route 10 along the Kershope Burn.
- 9.2.4. The long-term vision for both management plans is to restructure the forest to provide a more diverse and resilient forest that contributes to long term economic, social and environmental benefits. To achieve this vision clear felling, thinning, restocking, and infrastructure development must take place. Due to the soils and climatic conditions, lower impact systems of management are not appropriate, and clear fell and restocking would continue as the primary management method.
- 9.2.5. A small area of woodland to the south-west of Newcastleton Forest is registered on the Ancient Woodland Inventory as ancient woodland of semi natural origin, as shown in **Figure 1.3.4 Designated Areas and Landscapes**.

9.3 METHODOLOGY

- 9.3.1. A Forestry Impact Assessment (represented as a standalone EIA chapter) would be prepared, which would detail areas of tree removal and opportunities for replanting, illustrating the forestry requirements associated with the construction and operation of the Proposed Development. This would include a sequencing plan to conform as closely as possible to the existing land management plan, detailing the timing of woodlands proposed to be felled for the construction and operation of the Proposed Development.
- 9.3.2. The changes to the woodland structure would be described and analysed including changes to woodland composition, timber production, traffic movements and the felling and restocking plans. The resulting changes to the woodland structure would be assessed for compliance with the UK Forestry Standard and the requirement for compensation planting to mitigate woodland loss would be identified.
- 9.3.3. The Forest Plan would be assessed against the baseline data in line with the Scottish Government's Policy on Control of Woodland Removal: Implementation Guidance. Effects would be considered in line with **Section 3.6**, or an explanation given to any deviation from this methodology.

9.4 POTENTIAL IMPACTS

- 9.4.1. There is a requirement for numerous pockets of plantation to be removed to facilitate the 'key-holing' of wind turbines and potential areas of removal required for new access tracks. Assessment during the EIA might find that extended felling is required to reduce the risk of windthrow, increasing the overall area of woodland loss.
- 9.4.2. There is a presumption that the ancient woodland would be protected.

9.5 CUMULATIVE EFFECTS

- 9.5.1. The potential impacts are associated with an extensive forest area that forms a boundary to land management planning. As such, cumulative forestry impacts are not anticipated.

9.6 MITIGATION

- 9.6.1. Measures to avoid or mitigate potential impacts upon the forest will, as far as practicable, sought to be embedded in the design of the Proposed Development through consideration of the siting of the turbines and by using existing access tracks.
- 9.6.2. Potential forms of mitigation may include a redesign of the existing forest including, for example, the use of designed open space; alternative woodland types; changing the management intensity; or the provision of compensation planting on or offsite.

9.7 CONSULTATION

- 9.7.1. Consultation with FLS as land manager and Scottish Forestry as forestry authority would be conducted throughout the EIA process. Other consultation with forestry organisations with relevant interests would be conducted where necessary.

9.8 SUMMARY OF EFFECTS

- 9.8.1. Where there is the potential for significant effects on forestry, these would be considered in detail in the assessment within the EIA Report.

10 GEOLOGY, HYDROLOGY AND HYDROGEOLOGY

10.1 INTRODUCTION

10.1.1. This chapter considers the potential effects of the Proposed Development with respect to geology, hydrology (including flood risk) and hydrogeology. The chapter should be read in conjunction with the relevant parts of **Chapter 8: Ecology**, where common receptors have been considered and where there is an overlap or relationship between the assessment of effects.

10.2 BASELINE CONDITIONS

DATA SOURCES

10.2.1. The appraisal of existing (baseline) conditions for the purposes of this chapter has involved the collection and interpretation of a range of data and information from published material, plus consultations relating to the local and wider hydrological environment with statutory bodies, principally the Scottish Environment Protection Agency (SEPA) and SBC. The data collected, and other sources of information, are listed in **Table 10-1**. The assessment is also inter-related with, and uses information from, other chapters of this Scoping Report, such as **Chapter 8: Ecology**.

Table 10-1 - Sources of Desk Study Information for Geology, Hydrology (Including Flood Risk) and Hydrogeology

Source	Data
Ordnance Survey (OS) 1:50,000, Landranger Sheets 79 Hawick & Eskdale and 80 Cheviot Hills & Kielder Water OS 1:25,000, Explorer Sheets 324: Liddesdale & Kershope Forest, OL42 Kielder Water & Forest and OL16 The Cheviot Hills OS 1;10,000 Raster map (Bing Maps)	Topography and features
Centre for Ecology and Hydrology (CEH) National River Flow Archive (NRFA) www.ceh.ac.uk/data/nrfa/index.html Gauging Station data: Kielder at Kielder Burn https://nrfa.ceh.ac.uk/data/station/info/23011 Rainfall data https://www.metoffice.gov.uk/ Climate station data: Eskdalemuir Eskdalemuir (Dumfries and Galloway) UK climate averages - Met Office	Climate
British Geological Survey (BGS) Hydrogeological Map of Scotland (1:625,000) (1988) BGS GeoIndex (onshore) (1:50,000) BGS Geological Survey of Scotland, 1:50,000 geological map series Superficial Deposits & Simplified Bedrock - Solway East (Sheets 10E & 11) BGS/Natural Environment Research Council (NERC). A GIS of Aquifer Productivity in Scotland. Explanatory Notes. Commissioned Report CR/04/047N http://nora.nerc.ac.uk/504764/1/CR-04-047N_SEPA%20Aq%20productivity.pdf	Geology, ground conditions and hydrogeology

Source	Data
<p>BGS Aquifer classification map layer on Scotland's Environment website https://map.environment.gov.scot/sewebmap/</p> <p>SEPA/BGS/Scotland and Northern Ireland Forum for Environmental Research (SNIFFER). Vulnerability of Groundwater in the Uppermost Aquifer (Scotland)</p>	
<p>National Soil Map of Scotland (Macaulay Institute for Soil Research) http://soils.environment.gov.scot/</p>	Soils and peat
<p>River Network Map - CEH NRFA www.ceh.ac.uk/data/nrfa/index.html</p> <p>UK CEH NRFA: Environment Agency (EA) Gauge 23011 https://nrfa.ceh.ac.uk/data/station/meanflow/23011</p>	Hydrology and flows
<p>SEPA flood map http://map.sepa.org.uk/floodmap/map.htm</p>	Flood risk
<p>Scottish Government (SGt) The River Basin Management Plan for Scotland River Basin District 2015-2027</p> <p>SGt interactive mapping https://map.environment.gov.scot/sewebmap/?layers=riverClass</p> <p>SEPA interactive mapping facility for the Scotland River Basin Management Plan (RBMP) https://www.sepa.org.uk/data-visualisation/water-environment-hub/?riverbasindistrict=Scotland</p> <p>Water Classification Hub https://www.sepa.org.uk/data-visualisation/water-classification-hub/</p> <p>SEPA data request: information on river water quality</p>	RBMP and water quality
<p>SEPA and EA data requests: information on locations of Controlled Activities Regulations (CAR) licences (SEPA) and abstraction licences (EA)</p> <p>Private Water Supplies (PWSs) data request directly to SBC and Northumberland County Council (NCC)</p> <p>SGt Maps of the Drinking Water Protected Areas (DWPAs, Scotland) http://www.scotland.gov.uk/Topics/Environment/Water/17670/ProtectedAreasMaps2013</p> <p>Licensed sites data download from SEPA website https://www.sepa.org.uk/environment/environmental-data/</p>	Abstractions and discharges
<p>NatureScot information on protected areas https://sitelink.nature.scot/</p> <p>Ecology surveys - as per Chapter 8: Ecology</p>	Wetlands and peatlands

CURRENT BASELINE

Study Area

- 10.2.2. Desk study data for this chapter have been gathered with respect to a defined Study Area. The Study Area is focussed on the Site and a 2km buffer area immediately beyond the Site.

Current Baseline

- 10.2.3. The Site comprises land within Wauchope Forest and New Castleton Forest, entirely within the Scottish Borders. The B6357 between Cleuch Head and new Castleton runs through the centre of the Site. The A68 is located to the east and the A7 is located to the west. The land is predominantly commercial and recreational forestry with some agricultural ground, comprising rough grazing and pasture.
- 10.2.4. The Site is bordered to the south-east by the English Border and essentially a continuation of the English Kielder Forest. The highest point of the Site in Newcastleton Forest is to the north-east at Larriston Fells (NGR NY 569 921), reaching 512m Above Ordnance Datum (AOD), whereas in the Wauchope Forest part of the Site it is 600mAOD at Peel Fell (NGR NY 624 998), on the eastern site boundary.
- 10.2.5. Within Newcastleton Forest, surface elevations fall to the north-west and Liddel Water, down to approximately 140 mAOD west at Whithaugh Moss (NGR NY 494 885). In Wauchope Forest the lowest ground elevation (180 mAOD) is found to the north, on the Catlee Burn within the Walter Plantation (NGR NT 587 077).
- 10.2.6. The area has an average annual rainfall of 1271mm (1961 to 2017), as recorded at the Kielder Burn gauging station at Kielder (Station Ref. 23011; NGR NY 644 946), approximately 5.5km south-east of the Site.
- 10.2.7. The bedrock geology within Newcastleton Forest comprises Larriston Sandstone Beds, Border Group (sandstone, siltstone and mudstone), an igneous intrusion to the north of Priest Hill (NGR NY 501 891) called the Birrenswark Volcanic Formation (lava, basaltic), and the Kershopefoot Basalt Beds (lava, basaltic) to the south of the Site. These rocks were all formed during the Carboniferous era.
- 10.2.8. In Wauchope Forest to the east, bedrock geology comprises the Ballagan Formation (sandstone, siltstone and dolomitic limestone), the Stratheden Group and Inverclyde Group (interbedded sandstone and argillaceous rocks), formed during the Carboniferous era, and the Riccarton Group (wacke and mudstone) formed during the Silurian period. Furthermore, intrusions of the Birrenswark Volcanic Formation also occur within Wauchope Forest, with the Needs Law Plug outcrops at Needs Law (NGR NT 605 022) near the southern boundary of the forest, comprising miccrogabbro, plagioclase-phyric and formed during the Carboniferous era. To the west, the bedrock geology is predominantly that of the Riccarton Group and the Border Group, but also present are rocks of the Stratheden Group and Inverclyde Group, Whita Sandstone Beds (sandstone), the Glencartholm Volcanic Member (lava, basaltic) and volcanic plugs / vents at Hemlaw Knowes (NGR NT 572 057) and Leap Hill (NGR NT 514 014), all formed during the Carboniferous period.

- 10.2.9. Superficial deposits are indicated as absent from large swathes of both the Newcastleton and Wauchope Forests. Where superficial deposits are present in Newcastleton Forest, these comprise till (Devensian) and pockets of peat which are spread throughout on areas of flatter topography, predominating in the eastern and north-eastern parts from Dinmontlair Knowe (NGR NY 544 878) to Larriston Fells (NGR NY 576 929). Some small pockets of glaciofluvial deposits, comprising gravel, sand and silt, also occur to the west of the site. In Wauchope Forest, where superficial deposits are mapped, these include large peat bodies and till. Some minor occurrences of alluvium are also present, associated with the larger watercourses.
- 10.2.10. Soil cover in the area is variable with peaty gleys with dystrophic blanket peat and noncalcareous gleys predominating in Newcastleton Forest. In Wauchope Forest soils are even more variable, with noncalcareous gleys with peaty gleys, dystrophic blanket peat, peaty gleys with dystrophic blanket peat, humus-iron podzols, peaty gleyed podzols with brown earths and brown earths all present.
- 10.2.11. The Larriston Sandstone Beds Formation and the Border Group underlying the Newcastleton site are classified as moderately productive aquifers. The Larriston Sandstone Beds Formation is described as a locally important aquifer, up to 300m thick with intergranular flow in friable horizons and fracture flow through joints, whilst the Border Group is a multi-layered, locally important aquifer with variable yields up to 6 litres per second (l/s). Where igneous rocks occur, these are regarded as a low productivity aquifer i.e., where small amounts of groundwater are present in the near-surface weathered zone and in secondary fractures. Groundwater yields of up to 2l/s may be possible from rare springs in this geology.
- 10.2.12. Underlying Wauchope Forest, the rocks of the Riccarton Group are described as a low productivity aquifer. These are highly indurated greywackes with small amounts of groundwater in the near-surface weathered zone and secondary fractures. The Glencartholm Volcanic Member rocks, the Birrenswark Volcanic Formation and the volcanic pugs / vents are also described as low productivity aquifers. The Ballagan Formation and the Inverclyde Group rocks are described as moderately productive aquifers which are multi-layered with fracture flow and can yield up to 10 l/s of groundwater. The rocks of the Stratheden Ground are described as sandstone, partly pebbly with subordinate siltstone and mudstone and also produce moderate amounts of groundwater.
- 10.2.13. The Newcastleton (ID: 150659), Jedburgh (ID: 150664) and Wauchope Forest (ID: 150508) Water Framework Directive¹³¹ (WFD) groundwater bodies associated with the area's bedrock formations are all classified as having Good overall status.
- 10.2.14. Superficial deposits across the Site do not comprise a significant aquifer, although the alluvium can constitute an aquifer of limited areal extent supporting borehole yields of perhaps 1 – 2l/s.
- 10.2.15. The main WFD watercourses draining Newcastleton Forest include the Larriston Burn (ID: 10698), Kershope Burn (ID: 10692), Tweeden Burn (ID: 10693) and the Liddel Water / Peel Burn (IDs: 10687 and 10738). These are all are classified as having either 'High' or 'Good' overall statuses. The main WFD watercourses draining the Wauchope Forest site include the Black Burn (ID: 5235; Good), Jed Water (ID: 5232; Good), Hyndlee Burn (ID: 5245; Good), the Rule Water / Wauchope Burn (ID: 5243; Moderate), Lurgies Burn (ID: 5246; Poor), Flosch Burn (ID: 5252; Good), Roughley Burn / Laidlenhope Burn (ID: 10697; Good), Dawston Burn / Alison Sike (ID: 10699; High) and the

¹³¹ [Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy \(legislation.gov.uk\)](https://legislation.gov.uk) [accessed May 2023]

Liddel Water / Peel Burn (ID: 10738; Good). The Liddel Water and all of the watercourses draining Newcastleton Forest are within River Esk catchment and flowing, generally, to the south-west, whereas those within Wauchope Forest are within the River Tweed catchment and flowing, generally, to the north-east.

- 10.2.16. As previously mentioned, the nearest river gauging station is on the Kielder Burn at Kielder. This gauge has a flow record covering 1970 - 2021. The river catchment is 58.8km² and has a mean flow of 1.899m³/s and baseflow index of 0.32.
- 10.2.17. The Site appears to be very well drained, with river flooding mainly confined to the flood plains of the larger watercourses, including Liddel Water, Dawston Burn, Caddroun Burn (a tributary of Liddel Water), Peel Burn, Black Burn, Jed Water and Hyndlee Burn. Furthermore, only small patches are at risk from surface water (pluvial) flooding, mostly confined to smaller tributary watercourses.
- 10.2.18. The presence of PWSs or licenced abstractions has not yet been established. However, further details on PWSs would be provided in the EIA Report after consultation with SBC and NCC and, for licensed abstractions, after consultation with SEPA and the EA.
- 10.2.19. There are numerous nature conservation sites in close proximity to, and within, the Site. These include the following:
- Kershope Bridge Site of Special Scientific Interest (SSSI) (NY 499 834);
 - Langholm-Newcastleton Hills SSSI and Special Protection Area (SPA) (NY 439 902);
 - Kielder Mires SSSI (NY 576 832);
 - Border Mires Special Area of Conservation (SAC) (NT 684 013);
 - Kielderhead Moors SSSI and National Nature Reserve (NNR) (NT 637 026);
 - Kielderhead and Emblehope Moors SSSI (NT 694 055);
 - River Tweed SAC (NT 591 065); and
 - Cragbanks and Wolfehopelee SSSI and Borders Woods SAC (NGR NT 590 074).
- 10.2.20. Many of these designations are due to the presence of blanket bog, peat bodies, banket mire, transition mire, grassland complexes, wet heath etc. However, Kershope Bridge SSSI is designated for geological interest (volcanic rock intercalated with sediments of the Northumberland Basin). The River Tweed SAC, with tributaries arising from within the Site including Black Burn and Rule Water, is notified as a prime example of a “whole river system”, which supports other notified features including salmon, otter, rare plants, rare fish and assemblages of invertebrates.
- 10.2.21. Given the prevalence of mire and bogland within the area of the Site, there is a high likelihood that groundwater dependent terrestrial ecosystems (GWDTEs) are present. These would be identified by ecology surveys undertaken as part of the EIA Report. Further assessment will be undertaken to define the groundwater dependence of these habitats in the geology, hydrology and hydrogeology chapter, so that the wind farm design takes account of the locations of the most sensitive habitats and either avoids them or provides suitable mitigation.

FUTURE BASELINE

- 10.2.22. Given the nature of the terrain and distance from any major urban areas, any future land use change from its current rural nature, with nature reserves and designated sites prevalent in the area, is unlikely over the lifespan of the Proposed Development. There are no land use allocations in the SBC LDP that would suggest major changes in land uses are likely which could affect matters assessed in this chapter. The potential impacts of other developments upon geology, hydrology and hydrogeology would be considered in a cumulative assessment.
- 10.2.23. The conditions at the Site in the absence of the proposed development would be affected by the likely influence of climate change in the future, which could affect the amount and intensity of rainfall, and temperature and evapotranspiration. The UK Climate Projections 2018 (UKCP18)¹³² produced by the Meteorological Office Hadley Centre provide information regarding the potential future climate in Scotland. Representative Concentration Pathway (RCP) 8.5 reflects a high emissions scenario and is considered a possible, but conservative, emission scenario suitable for evaluating the climate resilience of long-lifetime projects. The central estimate (50th percentile) under the RCP8.5 scenario predicts an increase in annual mean temperature of 1.5°C by the end of the 2050s. The RCP8.5 scenario also has a central estimate of an 8% decrease in summer precipitation, with an increase of 12% in winter precipitation, by the end of the 2050s. This could change the hydrological characteristics of the Site and wider catchment areas over time.

10.3 METHODOLOGY

PLANNING POLICY CONTEXT

- 10.3.1. As discussed in **Chapter 4: Legislation, Energy Policy and Planning Policy Context**, the Scottish Ministers adopted and published National Planning Framework 4 (NPF4) on 13 February 2023. It contains policies with relevance to this geology, hydrology and hydrogeology assessment, including Policy 22 (sustainable drainage systems, SUDS), and provides support for renewable technologies, such as wind farms via Policy 11.
- 10.3.2. Also as discussed in **Chapter 4**, national planning policy is supported by Planning Circulars, PANs and Specific Advice Sheets (SASs), and by Ministerial / Chief Planning Letters to Planning Authorities, which set out detailed advice from the Scottish Government in relation to planning issues. The PANS and SASs considered relevant to this chapter include PAN 61 Sustainable Urban Drainage Systems (July 2011) and PAN 79 (Water and Drainage, September 2006).
- 10.3.3. As mentioned in **Chapter 4**, a number of policies relevant to geology, hydrology and hydrogeology are also found within the SBC LDP. This includes Environment Promotion and Protection policies (EP): EP1 – International Nature Conservation Sites and Protected Species; EP2 - National Nature Conservation Sites and Protected Species; EP15 – Development Affecting the Water Environment. It also includes Infrastructure and Standards (IS): IS8 – Flooding.

APPROACH

- 10.3.4. The generic project-wide approach to the assessment methodology is set out in **Chapter 3: EIA Process and Consultation**. This section describes how this methodology would be applied, and

¹³² [UK Climate Projections \(UKCP\) - Met Office](#)

adapted as appropriate, to address the specific needs of the geology, hydrology (including flood risk) and hydrogeology assessment.

- 10.3.5. The EIA Report chapter would summarise the findings of the desk study and consultation, these together forming the baseline against which the potential impact of the Proposed Development, alone and cumulatively with other wind farm developments, would be assessed.
- 10.3.6. The significance of the effects resulting from the Proposed Development would be primarily determined by the value of a given water feature and the magnitude of change. In terms of the hydrology and hydrogeology, the key types of effects would relate to water quantity (level and flow) and quality. However, depending on the effects on surface water flows, there may also be effects on immediate and downstream morphology and sediment dynamics and flood risk.
- 10.3.7. In the assessment all mitigation considered necessary would be identified and residual effects with this mitigation in place would be determined. It is intended that no residual significant effects would remain following adoption of the proposed mitigation, but whether this is achievable would be investigated as part of the EIA.

POTENTIAL RECEPTORS

- 10.3.8. From consideration of the baseline and the Proposed Development, receptors that could be significantly affected and that therefore need to be taken forward for further consideration in the EIA comprise the following:
- Groundwater within bedrock and the associated Newcastleton, Jedburgh and Wauchope Forest WFD groundwater bodies;
 - Watercourses and associated WFD surface water bodies, namely Larriston Burn, Kershope Burn, Tweeden Burn and the Liddel Water / Peel Burn draining the Newcastleton Forest site and the Black Burn, Jed Water, Hyndlee Burn, the Rule Water / Wauchope Burn, Lurgies Burn, Flosh Burn, Roughley Burn / Laidlenhope Burn, Dawston Burn / Alison Sike and the Liddel Water / Peel Burn draining the Wauchope Forest site;
 - Nearby abstractions, springs and water resource use, including pwss; and
 - Water conditions supporting conservation sites, including gwdtes.
- 10.3.9. Those receptors that have the potential to be significantly affected by the Proposed Development would be assessed in the EIA Report on the basis of their value / sensitivity and the magnitude of change to which they would be exposed to.
- 10.3.10. In terms of the receptors 'scoped out' from further assessment, these would be confirmed but are likely to include the following:
- The Kershope Bridge SSSI, which is designated for geological interest and is a significant distance downstream of the Proposed Development;
 - The Langholm-Newcastleton Hills SSSI and SPA are located to the west of the Liddel Water, which forms a hydraulic divide between the conservation site and the Development Site;
 - The Kielder Mires SSSI, Border Mires SAC, Kielderhead and Emblehope Moors SSSI are all located out with the surface water catchments of the Proposed Development;
 - Other conservation sites outside of the Study Area, given the relatively small scale of the Site relative to the downgradient surface water catchments; and

- Flood risk, given the small scale of the Site relative to the downgradient surface water catchments and the paucity of downstream property and infrastructure.

10.4 POTENTIAL IMPACTS

10.4.1. The potentially significant geological, hydrological and hydrogeological effects that would be taken forward for assessment are summarised in **Table 10-2**.

Table 10-2 - Likely Significant Geological, Hydrology and Hydrogeology Effects

Activity	Effects	Receptors
Land preparation (earthworks and excavation of the turbine foundations and any borrow pits)	<p>Ground disturbance leads to sediment loading and pollution of watercourses.</p> <p>Contamination of soils, surface waters and groundwater due to accidental release of pollutants during works.</p> <p>Excavation and fill leads to disruption of surface and near-surface flow paths and changes to the drainage regime, most typically increased runoff and flood risk.</p> <p>Dewatering interception of groundwater leading to a loss of water resource and disruption of groundwater support (baseflow) to watercourses.</p>	<p>Groundwater within bedrock and associated WFD groundwater bodies.</p> <p>Watercourses and associated WFD surface water bodies.</p> <p>Abstractions, springs, ponds and water resource use, including PWSs.</p> <p>Water conditions supporting conservation sites, including GWDTEs.</p>
Soil compaction and temporary hardstanding	<p>Contamination of soils, surface waters and groundwater due to accidental release of pollutants during works.</p> <p>Reduced infiltration capacity results in increased runoff and flood risk, and reduced recharge to groundwater, leading to loss of water resource and disruption of baseflow to watercourses.</p> <p>Ground disturbance and destruction of geological structures.</p>	<p>Groundwater within bedrock and associated WFD groundwater bodies.</p> <p>Watercourses and associated WFD surface water bodies.</p> <p>Abstractions, springs, ponds and water resource use, including PWSs.</p> <p>Water conditions supporting conservation sites, including GWDTEs.</p>
Land clearance and deforestation	<p>Land clearance and ground disturbance leads to sediment loading and pollution of watercourses.</p> <p>Contamination of soils, surface waters and groundwater due to</p>	<p>Groundwater within bedrock and associated WFD groundwater bodies.</p> <p>Watercourses and associated WFD surface water bodies.</p>

Activity	Effects	Receptors
	<p>accidental release of pollutants during works.</p> <p>Land clearance leads to disruption of surface and near-surface flow paths and changes to the drainage regime, most typically increased runoff and flood risk.</p> <p>Land clearance leads to breakdown of peat structure and disturbance of peat hydrology.</p>	<p>Abstractions, springs, ponds and water resource use, including PWSs.</p> <p>Water conditions supporting conservation sites, including GWDTEs.</p>
Material stockpiling / removal (quarrying)	<p>Ground disturbance leads to sediment loading and pollution of watercourses.</p> <p>Contamination of soils, surface waters and groundwater due to accidental release of pollutants during works.</p> <p>Excavation and fill leads to disruption of surface and near-surface flow paths and changes to the drainage regime, most typically increased runoff and flood risk.</p> <p>Dewatering interception of groundwater leading to a loss of water resource and disruption of groundwater support (baseflow) to watercourses.</p>	<p>Groundwater within bedrock and associated WFD groundwater bodies.</p> <p>Watercourses and associated WFD surface water bodies.</p> <p>Abstractions, springs, ponds and water resource use, including PWSs.</p> <p>Water conditions supporting conservation sites, including GWDTEs.</p>
Watercourse crossings	<p>Bank and bed disturbance leads to sediment loading, changes in morphology and pollution of watercourses.</p> <p>Contamination of watercourses due to accidental release of pollutants during works.</p>	<p>Watercourses and associated WFD surface water bodies.</p> <p>Abstractions, springs, ponds and water resource use, including PWSs.</p> <p>Water conditions supporting conservation sites, including GWDTEs.</p>
Track and crane pad placement	<p>Ground disturbance leads to sediment loading and pollution of watercourses.</p> <p>Contamination of soils, surface waters and groundwater due to accidental release of pollutants during works.</p> <p>Track and crane pad placement leads to disruption of surface</p>	<p>Groundwater within bedrock and associated WFD groundwater bodies.</p> <p>Watercourses and associated WFD surface water bodies</p> <p>Abstractions, springs, ponds and water resource use, including PWSs.</p>

Activity	Effects	Receptors
	<p>and near-surface flow paths and changes to the drainage regime, most typically increased runoff and flood risk.</p> <p>Ground disturbance and destruction of geological structures.</p>	<p>Water conditions supporting conservation sites, including GWDTEs.</p>
<p>Control building and potential substation placement</p>	<p>Ground disturbance leads to sediment loading and pollution of watercourses.</p> <p>Contamination of soils, surface waters and groundwater due to accidental release of pollutants during works.</p> <p>Control building and potential substation placement leads to disruption of surface and near-surface flow paths and changes to the drainage regime, most typically increased runoff and flood risk.</p>	<p>Groundwater within bedrock and associated WFD groundwater bodies.</p> <p>Watercourses and associated WFD surface water bodies.</p> <p>Abstractions, springs, ponds and water resource use, including PWSs.</p> <p>Water conditions supporting conservation sites, including GWDTEs.</p>
<p>Operational facilities and activities</p>	<p>Exposed ground leads to continued sediment loading and pollution of watercourses.</p> <p>Contamination of soils, surface waters and groundwater due to accidental release of pollutants during maintenance activities.</p> <p>Contamination of soils, surface waters and groundwater due to control building and substation chemical leaks and concrete leaching.</p> <p>Continuation of flow disruption, reduced infiltration capacity and peat disruption effects.</p>	<p>Groundwater within bedrock and associated WFD groundwater bodies.</p> <p>Watercourses and associated WFD surface water bodies.</p> <p>Abstractions, springs, ponds and water resource use, including PWSs.</p> <p>Water conditions supporting conservation sites, including GWDTEs.</p>

- 10.4.2. The main potential geological, hydrological and hydrogeological impacts associated with the Proposed Development relate to the construction phase, in particular from tracks and watercourse crossings. The EIA Report would identify the location and the nature of the impact from construction and upgrading activities, in particular the potential for the generation of silt-laden runoff. It would then prescribe measures to be adopted during construction to mitigate against negative impacts on the water environment.
- 10.4.3. Other activities of relevance include the construction of wind turbine foundations and crane pads, the control building and the potential substation. The impacts from these activities, such as the leaching of concrete residues to the water environment and changes in the runoff / recharge characteristics, would also be addressed in the EIA Report. Again, mitigation measures would be outlined that would reduce negative impacts.
- 10.4.4. The possibility for borrow pits and stockpiling would be explored and should the Site be suitable for these elements, the impacts upon the water environment would also be assessed.
- 10.4.5. Impacts during decommissioning would likely be similar to those during the construction phase but would depend on the exact nature of the decommissioning activities that take place. However, it is likely that the ground disturbance would be much less. Mitigation similar to that implemented during the construction and operational phases (updated to reflect changes in legislation / guidance) would also help ensure that the significance of such impacts is minimised, and it is therefore currently proposed that consideration of decommissioning effects is scoped out of the EIA.

10.5 CUMULATIVE EFFECTS

- 10.5.1. Cumulative effects on hydrology (including flood risk) and hydrogeology from the construction and operation of the Proposed Development and its relation to other, nearby wind farm and large-scale development (existing, consented but not yet built and proposed (at application stage)) would also be considered in detail within the EIA Report. This assessment would typically be based on a zone of influence extending 10 km beyond the Proposed Development.
- 10.5.2. The potential cumulative effects from the Proposed Development identified by other environmental disciplines would also be considered if such identified cumulative effects could potentially impact hydrology and hydrogeology.
- 10.5.3. Monitoring and further mitigation would be recommended as appropriate to reduce cumulative impacts to an acceptable level.

10.6 MITIGATION

- 10.6.1. In the assessment of effects account would be taken of 'embedded' mitigation measures i.e., those mitigation measures that are inherent to the Proposed Development. These measures include all mitigation usually assumed to be in place during construction and operation and that are generally regarded as industry standard or Best Practice. With respect to geology, hydrology (including flood risk) and hydrogeology, these include, but are not limited to, the following:
- Avoidance of steep gradients, deep peat and flood zones when establishing the footprint of the Proposed Development;
 - Application of a 50m buffer zone applied to the entire OS watercourse network;

- Application of 100m and 250m SEPA (Land Use Planning System Guidance Notes 31, LUPS-GU31) buffers around abstractions, PWSs and GWDTEs;
- Use of micro-siting if unforeseen ground conditions are encountered;
- Adherence to the conditions of the required Construction Site Licence (CSL), including adoption of a Pollution Prevention Plan (PPP);
- Adoption of sensitive track and drainage design, including 'floating' roads on areas of deeper peat, with all drainage measures set out in a Water Management Plan (WMP) that would accompany a Construction Environment Management Plan (CEMP);
- Adherence to Best Practice guidance and Controlled Activities Regulation (CAR) authorisation with respect to watercourse crossings, with designs capable of conveying a 1 in 200 year return period flood event with an allowance for climate change;
- Deeper excavations would be designed so that they can freely drain by gravity where possible and incorporate perimeter cut-off drains. Any required dewatering and associated discharge would be undertaken in accordance with Best Practice and the CEMP, and abstractions greater than 10 m³/d would require CAR Registration, while over 50 m³/d would require a CAR licence;
- Measures based on Best Practice guidelines from SEPA would be adopted during construction to prevent pollution, with all contractors aware of a pre-planned pollution incident response procedure (PIRP). Ground investigation would be undertaken at all borrow pit search locations to determine the presence and extent of any shallow soil contaminants;
- Fuel would be stored in a suitably sized bunded area or self-bunded above-ground storage tank (AST), and maintenance and refuelling of machinery would be undertaken offsite or within designated areas of temporary hardstanding; and
- A CEMP would be produced prior to the commencement of construction activities that would follow Best Practice guidance, as well as incorporating specific recommendations made in the EIA Report. No works would be undertaken unless agreed in the CEMP.

10.7 CONSULTATION

- 10.7.1. It has been identified that the main organisations that might hold views regarding the potential geology, hydrology (including flood risk) and hydrogeology effects of the Proposed Development include SEPA, the EA, Marine Scotland Science (MSS), SBC, NCC, Scottish Water and NatureScot.
- 10.7.2. Upon the completion and submission of the EIA Report, views and feedback would be sought from not just these organisations but all relevant parties and organisations. All consultation would be appreciated in order to ensure that the potential geology, hydrology (including flood risk) and hydrogeology effects of the Proposed Development are properly considered, and appropriate mitigation identified.

10.8 SUMMARY OF EFFECTS

- 10.8.1. There is the potential for effects on geology, hydrology (including flood risk) and hydrogeology during the construction and operation of the Proposed Development and these would be considered in detail in the assessment within the EIA Report. A summary of the results of the assessment would be provided by way of a table identifying the value, magnitude of change and significance for each receptor and potential effect, and also the rationale behind each assessment.

11 CARBON BALANCE

11.1 CARBON BALANCE

- 11.1.1. As a source of renewable energy, it is widely accepted that wind farms can help to reduce emissions of greenhouse gases that would otherwise have been released to the environment by burning fossil fuels to produce the equivalent energy output. Wind farms are therefore considered to be inherently beneficial in respect of climate change.
- 11.1.2. The vulnerability of the Proposed Development to climate change and extreme climate events would be considered within the engineering design. A Carbon Balance and Peat Slide Risk Assessment would be conducted as part of the Geology, Hydrology and Hydrogeology Assessment. The volume of greenhouse gas emission savings as a result of the Proposed Development generating power rather than this being generated by conventional means would be calculated.
- 11.1.3. The volume of greenhouse gas savings would be calculated based on Scottish Government guidance utilising the latest online carbon calculator (carbon calculator tool V1.7.0 <https://informatics.sepa.org.uk/CarbonCalculator/index.jsp>)
- 11.1.4. In accordance with Scottish Government guidance¹³³ the online carbon calculator would be completed using standardised carbon emissions figures provided in the calculator tool, site design parameters and relevant site-specific data including information gathered from peat probing and ecological/ hydrological studies.
- 11.1.5. The output would be figures for carbon payback time, carbon dioxide emissions offset and number of homes equivalent.
- 11.1.6. Results would be summarised in the EIA Report with detailed information provided within an accompanying technical note which would include a table containing justifications for values used in the carbon calculator.

¹³³ <https://www.gov.scot/publications/carbon-calculator-technical-guidance/>

12 TRAFFIC AND TRANSPORT

12.1 INTRODUCTION

12.1.1. With reference to applicable policies, guidance and strategies, the Traffic and Transport chapter of the EIA Report would assess the impact of the Proposed Development on the existing transport network in the area.

PLANNING POLICY CONTEXT

12.1.2. The Traffic and Transport EIA Report chapter would take into account the relevant national policies referred to in **Chapter 4: Planning Policy Context**. The Traffic and Transport EIA Report chapter would also take into account local policies including:

- Scottish Borders Council Local Development Plan (2016);
- Scottish Borders Council Local Access and Transport Strategy Main Issues Report (2015);
- Scottish Borders Council Supplementary Guidance Renewable Energy (2018);
- South East of Scotland Transport Partnership Regional Transport Strategy 2015 – 2023 Refresh (2015); and
- The Strategic Development Planning Authority for Edinburgh and South East Scotland Strategic Development Plan (2013).

TECHNICAL GUIDANCE

12.1.3. The assessment would be conducted with reference to method guidance contained in Guidance Notes No.1: Guidelines for the Environmental Assessment of Road Traffic¹³⁴ (GEART) (Institute of Environmental Assessment, 1993). GEART provides the framework for the environmental assessment of traffic generated by proposed developments.

12.2 BASELINE CONDITIONS

DATA SOURCES

12.2.1. The sources of information that anticipated to be used to inform the Traffic and Transport assessment are listed below in

¹³⁴ Institute of Environmental Assessment (IEA). (1993). Guidelines for the Environmental Assessment of Road Traffic (GEART). IEA; Lincoln, UK.

12.2.2. **Table 12-1.**

Table 12-1 - Sources of Information used for the Traffic and Transport Assessment

Source	Data
Google Earth/Google Maps	Online mapping
Crashmap Pro	Personal Injury Accidents (PIAs)
Department for Transport (DfT)	Traffic Counts (AADT)
Department for Transport (DfT)	Trip End Model Presentation Program (TEMPRo) – for future traffic growth rates

CURRENT BASELINE

- 12.2.3. An overview of the existing road network’s baseline conditions would be provided with regards to:
 - A description of the local road network and environment alongside;
 - A summary of baseline traffic flows on the local road network based on available data from the DfT and additional traffic counts if needed; and
 - An overview and analysis of road accidents on the local road network based on Personal Injury Accident (PIA) data records derived from Crashamp Pro.
- 12.2.4. As a worst case scenario, it is assumed that construction materials would be sourced from one of the local quarries, however the specific quarry has not been specified at this point in the EIA process. It is assumed at this stage that the baseline would cover the following road links:
 - The B6357 between the A7 and A6088;
 - The A6088 between the B6357 and the A86;
 - The A68 in the vicinity of the A6088/A68 junction; and
 - The A7 in the vicinity of the B6357/A7 junction.
- 12.2.5. As more information on the Proposed Development and source of roadstone becomes available, additional road links would be included and assessed as required.
- 12.2.6. For the majority of its length between the A7 and A6088, the B6357 routes through rural areas, is single carriageway, without a footway and is subject to the National Speed Limit (NSL). There are sections of the route that are single track and there are cattlegrids present. The B6357 routes via multiple settlements with varying levels of pedestrian footway provided and subject to 30 mph or 20 mph speed limits, these settlements include Harelaw, Rowanburn, Canonbie and Newcastleton. Additionally, there is footway provision on the southern side of the carriageway between Rowanburn and Canonbie.
- 12.2.7. The A6088 between the B6357 and A68 predominantly routes through a rural area and is a single carriageway road without footway and subject to the NSL. As the A6088 routes through the settlement of Chesters, the road is subject to a 20mph speed limit.
- 12.2.8. The A7 in the vicinity of the A7/B6357 junction is a single carriageway road, subject to the NSL, routing through a rural area and without footway. The A7/B6357 is a staggered priority crossroads junction with right turning lanes on the A7.

- 12.2.9. The A68 in the vicinity of the A68/A6088 priority junction is a single carriageway road, subject to the NSL, routing through a rural area and without footway.
- 12.2.10. There are existing DfT traffic counts which can be used for baseline traffic flows for the roads within the Study Area. A summary of recent Annual Average Daily Flow (AADF) data from these count points is provided in **Table 12-2**. There is data available for 2019 traffic which would not be impacted by travel restrictions due to the Covid-19 pandemic, where traffic flows were recorded counted by automatic traffic counters in the last 5 years that has also been noted.

Table 12-2 - Summary of DfT Count Point Data in the Vicinity of the Proposed Development

DfT Count Point	Date and Method of Count Point	All Motor Vehicles (AADF)	Heavy Goods Vehicles (AADF)
967430 (B6357 Newcastleton)	2019 – manual count	1,421	57
804655 (B6357 between Old Castleton and Dinlabyre)	2019 – estimated using previous year's AADF on this link	361	68
	2018 – manual count	360	69
30737 (A6088 Southdean)	2021 – manual count	2,162	163
	2020 – manual count	1,805	125
	2019 – estimated using previous year's AADF on this link	3,143	166
10731 (A68 South of the junction with A6088)	2021 – estimated using previous year's AADF on this link	1,970	138
	2020 – estimated using previous year's AADF on this link	1,706	121
	2019 – estimated using previous year's AADF on this link	2,462	144
	2018 – automatic counter	2,448	144
30737 (A68 North of the junction with A6088)	2021 – manual count	2,162	163
	2020 – manual count	1,805	125
	2019 – estimated using previous year's AADF on this link	3,143	166
40716 (A7 South of the junction with B6357)	2021 – estimated using previous year's AADF on this link	3,257	534
	2020 – estimated using previous year's AADF on this link	2,804	466

DfT Count Point	Date and Method of Count Point	All Motor Vehicles (AADF)	Heavy Goods Vehicles (AADF)
	2019 – estimated using previous year’s AADF on this link	3,877	553
50718 (A7 North of the junction with B6357)	2021 – automatic counter	3,223	510
	2020 – automatic counter	2,896	463
	2019 – automatic counter	3,634	499

Data Source: <https://roadtraffic.dft.gov.uk/>

12.3 METHODOLOGY

SCOPE OF ASSESSMENT

- 12.3.1. Traffic flows would be generated during the construction phase of the Proposed Development, with the main transportation impacts associated with the movements of commercial heavy goods vehicles (HGVs) travelling to and from the Site. This would be considered in the traffic and transport assessment within the EIA Report.
- 12.3.2. Abnormal Indivisible Load (AIL) deliveries would be relatively few in number and would be closely managed (including escort vehicles and avoidance of peak and sensitive traffic periods). Roads Authorities approvals for the delivery of the abnormal loads would be required beforehand and undertaken under consultation. It is likely that an AIL study would be required to be submitted alongside the EIA for the AIL route. The routing of AILs would therefore not be included in relation to potential traffic related effects within the traffic and transport chapter of the EIA.
- 12.3.3. Once the Proposed Development is operational, it is envisaged that the volume of traffic generated by the scheme would be minimal. Occasional visits may be made to the Site for maintenance checks. The vehicles used for these visits are likely to be a 4x4 (or similar). There may be an occasional need for an HGV to access the Site for maintenance and repairs.
- 12.3.4. It is considered that the effects of operational traffic would be negligible and therefore it is proposed that the assessment of the operational phase of the Proposed Development is scoped out of the EIA.
- 12.3.5. On the assumption that below ground infrastructure and access tracks would remain in situ, less traffic would be generated during decommissioning than during construction. As such, the effects on the road network are likely to be similar in nature during the decommissioning phase though of lower magnitude than during construction phase as fewer vehicle movements would be required. The traffic baseline may be different when the decommissioning is undertaken after the lifespan of the development’s operational phase. Furthermore, there is a general assumption of increased traffic volumes in the future years, after the operational phase, and therefore the net increase in traffic flow as a result of the Proposed Development’s decommissioning would be proportionally lower than the net increase in traffic flow as a result of the Proposed Development’s construction phase.
- 12.3.6. As such it is proposed that the assessment of the decommissioning phase of the Proposed Development is scoped out of the EIA.

POTENTIAL RECEPTORS

- 12.3.7. As previously noted, the source of construction materials is not yet known and the Study Area may need to be extended beyond the B6357, A6088, A68 and A7 once established. The road links in the Study Area would form the basis for receptors for investigation of likely traffic and transport environmental effects of the Proposed Development.
- 12.3.8. Beyond these roads, traffic from the Proposed Development would access the wider road network where its effect would be diluted by existing traffic on these routes or would distribute to a point where the effects from the development's traffic would be minimal. As the EIA process progresses additional road links would be assessed if required once the quarry location is identified.
- 12.3.9. Receptors are the users of the roads, including drivers and pedestrians or cyclists, and properties alongside the roads.
- 12.3.10. GEART (IEA, 1993) identifies the groups and special interest groups that may be affected by changes in traffic flows as a result of development, including sensitive receptors such as hospitals, churches and schools and locations where there are high pedestrian flows such as town centres.

LIKELY SIGNIFICANT EFFECTS

- 12.3.11. The potential effects of the Proposed Development, with regards to Traffic and Transport, which would be subject to assessment are set out below and informed by guidance in GEART.
- Severance: the separation of people from places and other people and places or impede pedestrian access to essential facilities;
 - Driver delay: traffic delays to non-development traffic;
 - Pedestrian amenity: the effect on the relative pleasantness of a pedestrian journey as a result of changes in traffic flow, traffic composition and separation from traffic (including pavement width);
 - Pedestrian delay: the impact on the ability of people to crossroads as a result of changes in traffic volume, composition and speed; the level of pedestrian activity, visibility and general physical conditions of the Proposed Development;
 - Fear and intimidation: the change in these experienced by people as a result of a change in traffic volume and its proximity, including the lack of protection caused by such factors as narrow pavement widths; and
 - Accidents and safety: any impact on risk of accidents occurring where the Proposed Development is expected to produce a change in the character or volume of traffic.

12.4 ASSESSMENT METHODOLOGY

GENERAL APPROACH

- 12.4.1. The guidance used when assessing the potential significance of road traffic effects is summarised in GEART (IEMA, 1993), which states that:

"The detailed assessment of impacts is"...likely to concentrate on the period during which the absolute level of an impact is at its peak, as well as the hour at which the greatest level of change is likely to occur." (Paragraph 3.10).

- 12.4.2. To assess the impact of traffic generated by the Proposed Development at its peak, the volume and type of vehicles each month over the project programme is calculated and the worst-case scenario identified based on the maximum number of vehicles. The daily flows are estimated based on the working hours during construction. The likely percentage change in traffic is determined by comparing estimates of traffic generated by the Proposed Development with future predicted baseline traffic flows on the roads used by construction traffic in vicinity of the Site.
- 12.4.3. The main transportation impacts associated with a wind farm relate to the construction phase of the development. This would include the movement of HGV traffic travelling to and from a site bringing in material for the construction phase.
- 12.4.4. GEART provides two rules that are used to establish whether an environmental assessment of traffic effects on receptors should be carried out:
 - *“Rule 1: Include highway links where traffic flows are predicted to increase by more than 30% (or where the number of HGVs is predicted to increase by more than 30%)*
 - *Rule 2: Include sensitive areas where traffic flows are predicted to increase by 10% or more...”*
- 12.4.5. It should be noted that, according to GEART, predicted traffic flow increases below 10% are generally not considered to be significant as daily variations in background traffic flow may fluctuate by this amount. Changes in traffic flows below this level are, therefore, assumed not to result in significant environmental effects and would not be assessed further.
- 12.4.6. The significance of an effect resulting from a development is most commonly assessed by reference to the sensitivity (or value) of a receptor and the magnitude of the effect. This approach provides a mechanism for identifying areas where mitigation measures may be required and to identify the most appropriate measures to alleviate the risk presented by the development.

RECEPTOR SENSITIVITY

- 12.4.7. **Table 12-3** summarises the rationale used to determine the sensitivity of each highway link included in the assessment, against the corresponding receptors as part of the assessment as contained in GEART. Professional judgement is also used to determine the sensitivity of the receptor.

Table 12-3 - GEART Receptor Sensitivity Rational

Sensitivity	Description/ reason	Receptor
High	Highway links with a high sensitivity to changes in traffic flows include routes with sensitive receptors alongside them such as schools and colleges, and/or where there are land-uses which result in high volumes of pedestrian/cycle users and the road is narrow and/or footway provision is poor, existing traffic volumes are high for the type of road resulting in congestion and road safety issues.	Occupants of land-uses alongside the highway link and users of the highway link.
Medium	Highway links with a medium sensitivity to changes in traffic flows include routes with some sensitive receptors alongside them, and/or where there are land-uses which result	Occupants of land-uses alongside the highway link and users of the highway link.

Sensitivity	Description/ reason	Receptor
	in some pedestrian/cyclist users, road design and footway provision is adequate/appropriate, existing traffic volumes can be accommodated for the type of road but approaching capacity.	
Low	Highway links with low sensitivity to changes in traffic flows include routes with no sensitive receptors and some land uses alongside and no/very limited pedestrian/cyclist users, road design and footway provision is appropriate, existing traffic volumes can be accommodated for the type of road.	Occupants of land-uses alongside the highway link and users of the highway link.
Negligible	Highway links with negligible sensitivity to changes in traffic flows include routes with no sensitive receptors and very few land uses alongside them, which have no direct access and no/very limited pedestrian/cyclist users and existing traffic volumes can be accommodated for the type of road.	Users of the highway link.

12.4.8. Each highway link included in the assessment would be assigned a sensitivity in accordance with GEART, as summarised in **Table 12-3**.

12.4.9. Highways links where sensitivity is judged as High or Medium results in Rule 2 (sensitive areas where traffic flows are predicted to increase by 10% or more) being considered. Highways links where sensitivity is judged as Low or Negligible results in Rule 1 being considered (where traffic flows are predicted to increase by more than 30% (or where the number of HGVs is predicted to increase by more than 30%)).

12.4.10. Where the identified Rule 1 or Rule 2 threshold is exceeded, receptors would be taken forward for further assessment within the EIA report to determine likely significant traffic and transport effects. The classification of a significant traffic and transport effect would then be derived by considering the sensitivity of the receptor against the magnitude of change, with the details of the assessment presented in the EIA Report.

MAGNITUDE OF CHANGE

12.4.11. **Table 12-4** provides a summary of the magnitude of change definitions for each transport effect, with the thresholds used to determine this being based on guidance within GEART and professional judgement.

Table 12-4 - Magnitude of Change Summary

Magnitude of Change				
Transport Effect	Large	Medium	Small	Negligible
Severance	Change in total traffic or HGV flows over 91%	Change in total traffic or HGV flows of 61-90%	Change in total traffic or HGV flows of 31-60%	Change in total traffic or HGV flows of less than 30%

Magnitude of Change				
Transport Effect	Large	Medium	Small	Negligible
Driver Delay	High increase in queuing at junctions and/or congestion on road links.	Medium increase in queuing at junctions and/or congestion on road links.	Low increase in queuing at junctions and/or congestion on road links.	Low or no increase in queuing at junctions and/or congestion on road links.
Pedestrian Amenity and Delay	Based on general level of pedestrian activity, visibility, and physical conditions such as traffic flow, traffic composition, crossing points and pavement width/separation from traffic.			
Accidents and Safety	Informed by a review of existing collision patterns and trends based upon the existing personal injury accident records and the forecast increase in traffic.			

SIGNIFICANCE OF EFFECT CRITERIA

The classification of a likely significant traffic and transport effect is derived by considering the sensitivity of the receptor (derived from **Table 12-3**) against the magnitude of change (derived from **Table 12-4**), as defined in **Table 3-1**.

12.5 POTENTIAL IMPACTS

- 12.5.1. The potential traffic and transport impacts would be determined based on the percentage change between future traffic flows on the Study Area road network with and without the construction traffic. Anticipated construction traffic would be assessed for the peak month of construction traffic generation based on anticipated number of traffic movements required for construction activities.
- 12.5.2. The likely effects would include impact on severance, driver delay, pedestrian amenity, pedestrian delay, fear and intimidation and accident and safety and would be assessed based on the methodology set out in **Section 12.4**.
- 12.5.3. Construction traffic would be temporary in nature and therefore any traffic and transport effects on receptors would, also, be temporary in nature.

12.6 CUMULATIVE EFFECTS

- 12.6.1. Consideration would also be given as to whether any of the receptors which would be taken forward for assessment are likely to be subject to cumulative effects because of the traffic and transport effects generated by other proposed developments within the vicinity of the Proposed Development. If this is likely to be the case, a cumulative assessment would be undertaken within the traffic and transport assessment of environmental effects.

12.7 MITIGATION

- 12.7.1. Environmental measures can be embedded into the Proposed Development to minimise traffic and transport effects. It is likely that a Construction Traffic Management Plan (CTMP) would be required to be submitted alongside the EIA.

- 12.7.2. A CTMP is a document that sets out measures to minimise the impact of construction traffic on the local highways network such as defining HGV delivery routes, provision wheel-washing facilities and scheduling of deliveries to avoid peak/sensitive transport network hours/periods. A CTMP, also, sets out the monitoring, compliance and enforcement requirements to ensure the CTMP measures are complied with.

12.8 CONSULTATION

- 12.8.1. Engagement during the production of the traffic and transport chapter would be undertaken with relevant road authorities to agree the scope and Study Area of the assessment of transport effects.

12.9 SUMMARY OF EFFECTS

- 12.9.1. Traffic and transport effects would be assessed based on the methodology set out in **Section 12.4** for the receptors within the Study Area. The Proposed Development is unlikely to produce significant adverse transport effects as any effects would result from the presence of construction traffic on the road network and would be temporary in nature and mitigated in magnitude by embedded environmental measures such as the implementation of a CTMP.

13 NOISE AND VIBRATION

13.1 INTRODUCTION

- 13.1.1. The proposed scope of the noise and vibration assessment would consist of the assessment of construction and operational noise and vibration for the Proposed Development, including cumulative noise impacts from other relevant developments in the area.
- 13.1.2. This chapter seeks agreement from the Environmental Health Representative at the SBC on the proposed approach to the assessment.

13.2 BASELINE CONDITIONS

SUMMARY OF BASELINE CONDITIONS

- 13.2.1. The majority of the Site comprises commercial forestry land. The surrounding area is rural in nature and the closest settlements are Newcastleton, Old Castleton, Bonchester Bridge, Chesters and Southdean.
- 13.2.2. The nearest main roads are the A68, A6088 and A7 which lie approximately 2.3km east, 0.5km northeast and 10km west of the Site boundary respectively. The B6357 and B6399 run through the northern section of the Site boundary, with the B6357 running alongside the southern section of the Site boundary.
- 13.2.3. Environmental noise sources in the area are likely to include distant road traffic and wind generated noise, such as that associated with the movement of trees and other vegetation.
- 13.2.4. There have been no recent surveys undertaken to quantify baseline conditions. If required as a result of initial screening assessments, a programme of baseline measurements would be taken to inform the EIA.
- 13.2.5. A review of the Site using current Ordnance Survey mapping and aerial photography has identified potential noise sensitive receptors (NSRs) that would be considered within the EIA, at the following distances from the closest turbine:
- Dykecrofts Farm, approximately 1.8km west;
 - Old Castleton, approximately 1.7km west;
 - Byreholm, B6357, approximately 1.6km west;
 - Whitropefoot Farm, approximately 4.1km north west;
 - Windshilknowe, approximately 1.6km west;
 - Whitrope Cottage, approximately 1.5km west;
 - Wynburgh Cottage, approximately 1.5km west;
 - Hyndlee Cottages, approximately 1.9km northwest; and
 - Hyndlee Farm, approximately 1.9km west.
- 13.2.6. Receptors may be changed, or additional receptors added to this list if modelling identifies that this is an insufficient representation of noise impacts.

13.3 METHODOLOGY

- 13.3.1. The main objective of the noise assessment is to compare current noise levels in the Site to those that would pertain should the Proposed Development proceed and to determine acceptability for relevant receptors. In this case relevant receptors are considered to be restricted to residential receptors closest to the Proposed Development.
- 13.3.2. The EIA chapter would present a review of relevant policy and how it guides the assessment, the results of noise measurements, and finally the assessment of the noise predictions at relevant residential receptors against the noise limits.

CONSTRUCTION NOISE AND VIBRATION

- 13.3.3. In order to undertake construction noise calculations, details of the construction programme, the phasing of the works and the types and numbers of plant proposed are required. Such data would only become available once the contract(s) to construct the Proposed Development have been finalised. Notwithstanding the above, should impact piling be potentially used on the Site, a worst-case scenario for construction noise assessment, based upon experience of similar projects, would be presented in the EIA Report. Construction noise from piling would be predicted and assessed in accordance with BS 5228-1:2009 + A1:2014 *Code of practice for noise and vibration control on construction and open sites Part 1 – Noise*¹³⁵.
- 13.3.4. The impact of construction traffic along the local road system would be predicted using Calculation of Road Traffic Noise¹³⁶ and assessed using the magnitude criteria within the Design Manual for Roads and Bridges¹³⁷. The impact of construction traffic along the Site access route and the interim access track would be predicted and assessed in accordance with BS 5228-1:2009 + A1:2014¹³⁵.
- 13.3.5. In most cases, impact from construction noise (including construction traffic) is controlled through the implementation of mitigation measures (such as limiting hours during which construction can be undertaken) and undertaking construction works in accordance with good practices as described in BS 5228-1:2009 + A1:2014¹³⁵ (such as using well maintained and serviced plant, and the appointment of a Site contact to whom queries can be directed).

OPERATION NOISE

- 13.3.6. The proposed operational noise assessment would be undertaken in accordance with ETSU-R-97: The Assessment and Rating of Noise from Wind Farms¹³⁸ (ETSU Guidance) and the assessment methodology advocated within the Institute of Acoustics: A Good Practice Guide to Applications of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise¹³⁹ (IoA GPG).

¹³⁵ British Standards Institute (2014). *BS 5228-1:20099 + A1:2014 Code of practice for noise and vibration control on construction and open sites Part 1 – Noise*. BSI, London.

¹³⁶ Department of Transport Welsh Office (1988). *Calculation of Road Traffic Noise*. HMSO, London.

¹³⁷ Highways England (2020). *Design Manual for Roads and Bridges LA111: Noise and Vibration*. Highways England, London.

¹³⁸ The Working Group on Noise from Wind Turbines (1996). *ETSU-R-97 The Assessment and Rating of Noise from Wind Farms*. Noise Working Group, London.

¹³⁹ Institute of Acoustics (2013). *A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise*. IoA, London.

- 13.3.7. The ETSU Guidance advises that any noise restrictions placed on a wind farm must balance its environmental impact against the national and global benefits that would arise through the development of renewable energy sources:
- “The planning system must therefore seek to control the environmental impacts from a wind farm whilst at the same time recognising the national and global benefits that would arise through the development of renewable energy sources and not be so severe that wind farm development is unduly stifled.”*
- 13.3.8. In line with the ETSU-R-97 Guidance, an initial screening assessment of the Proposed Development would be conducted. Where turbine noise levels at the nearest NSRs are predicted to be above 35dB $L_{A90, 10min}$, or 45dB $L_{A90, 10min}$ for financially involved properties (at wind speeds up to 10m/s), a further and more detailed assessment in accordance with ETSU-R-97 would be required.
- 13.3.9. In the event that the screening exercise determines that a more detailed assessment in accordance with ETSU-R-97 is required, agreement would be sought with SBC to determine the appropriate method of obtaining baseline data.
- 13.3.10. Noise limits for the detailed assessment would be defined separately for daytime and night-time. During quiet daytime periods (18:00 – 23:00 weekdays, 13:00 – 23:00 Saturdays and 07:00 – 23:00 Sundays), noise limits are as follows:
- 5dB above the background noise curve for wind speeds up to 12m/s;
 - Where background noise levels are below 30 – 35dB $L_{A90, 10min}$, the lower limit should be fixed at 35 – 40dB $L_{A90, 10min}$; and
 - For properties with a financial interest in the scheme, the lower limit is fixed at 45dB $L_{A90, 10min}$.
- 13.3.11. For the cumulative assessment, a lower limit of 40dB $L_{A90, 10min}$ would be used to assess noise during the daytime at those wind speeds where the background noise level + 5dB is lower than 40dB $L_{A90, 10min}$.
- 13.3.12. For night-time periods (23:00 – 07:00 every day), noise limits are as follows:
- 5dB above the background noise curve for wind speeds up to 12m/s;
 - The lower limit is fixed at 43dB $L_{A90, 10min}$; and
 - For properties with a financial interest in the scheme, the lower limit is fixed at 45dB $L_{A90, 10min}$.
- 13.3.13. Noise modelling would be undertaken using software adopting methodologies advocated by the IOA GPG. It has been assumed that the proposed wind turbines would not produce any tonal noise unless identified within manufacturer data used for the various candidate turbine options. Currently, a consideration of Amplitude Modulation is only possible once a wind farm is operational and planning conditions should consider developing guidance where relevant at the appropriate time.
- 13.3.14. The assessment of significant operational noise effects is based upon compliance with the ETSU-R-97 i.e., a breach of the noise limits indicates a ‘significant’ effect, whereas compliance with noise limits indicates a ‘not significant’ effect. It is acknowledged that the ETSU-R-97 approach does not directly aim to determine significance in an EIA context, rather it represents a balance between the need for wind energy and the need to protect residential amenities. Since the purpose of identifying significant effect during EIA is to ensure they are taken into account in the ‘planning balance’, for the purposes of this assessment it is assumed that noise effects up to the ETSU-R-97 noise limits have already been taken into account and thus only noise levels exceeding the ETSU-R-97 noise limits are deemed to be ‘significant’ and require further consideration.

- 13.3.15. On the basis of the above, where noise levels exceed the ETSU-R-97 noise limits, identification of appropriate mitigation to ensure compliance with the specified limits would be required.

13.4 POTENTIAL IMPACTS

CONSTRUCTION

- 13.4.1. There is the potential for noise effects at residential properties as a result of piling or blasting from construction activities and borrow pit working, which may be required for the construction of the Proposed Development. If piling is required for construction, noise impacts from this activity would be assessed. As other activities onsite are very unlikely to result in significantly adverse effects given the distance from residential receptors, all other onsite activities are scoped out of the assessment. It is anticipated that any blasting requirements later identified in the design process would be controlled via a blasting management plan as part of a planning condition requirement. Blasting is therefore scoped out of the assessment.
- 13.4.2. Heavy vehicles for deliveries and large mobile items of plant are anticipated along the local road system. These vehicles could pass closely to residences, which would otherwise experience low levels of road traffic noise. Therefore, construction road traffic noise is scoped into the assessment.
- 13.4.3. Due to the distances involved between indicative turbine locations and NSRs, vibration from onsite plant would have no effect on the nearest residences to the Development Site. Nearby sensitive receptors would be protected from any blasting vibration through a blasting management plan. After analysing aerial imagery, it has been found that there are no residential or sensitive buildings located within 5 m of the potential construction traffic routes. As a result, it is unlikely that vibrations from heavy construction vehicles would cause any significant vibration effects. With these considerations in place vibration effects from the construction is scoped out of further assessment.

OPERATION

- 13.4.4. When operational, wind turbines emit two types of noise – mechanical noise and aerodynamic noise. The main sources of mechanical noise are from internal components housed within the nacelle, such as the gearbox and generator. Mechanical noise from a modern wind turbine is negligible, as the nacelles are insulated to reduce noise emissions and the various mechanical components housed within the nacelle are acoustically isolated to prevent structure-borne noise. This is scoped out of the assessment.
- 13.4.5. Aerodynamic noise occurs from the movement of the blades passing through the air. At higher wind speeds, aerodynamic noise is usually masked by the increasing sound of wind blowing through trees and around buildings. The level of masking determines the perceived audibility of the wind farm. The operational noise impact assessment establishes the relationship between wind turbine noise and the natural masking of noise resulting from features of the surrounding environment and assesses noise levels against established standards. This is scoped into the assessment.
- 13.4.6. It is proposed that operational traffic noise during the operation of the Proposed Development is scoped out as the amount of traffic associated with operation would be minimal.

DECOMMISSIONING

- 13.4.7. In terms of noise and vibration impacts during decommissioning, the effects on any sensitive receptors are likely to be similar in nature, but of lower magnitude, than those during the construction phase (no piling would be anticipated). As a result, it is not proposed to assess the decommissioning phase of the Proposed Development in addition to that of the construction phase. Therefore, the decommissioning element has been scoped out.

13.5 CUMULATIVE EFFECTS

- 13.5.1. A cumulative noise assessment would be included within the EIA. This assessment would identify other wind turbine and other relevant development (operational, consented or subject to an application) in the area that may impact on sensitive receptors together with the Proposed Development. There is one wind farm, Pines Burn Wind Farm, which is consented and under development which is located approximately 1.3km west from the northern section of the of the Site boundary. Therefore, this would be included in the consideration of potential cumulative effects.

13.6 MITIGATION

- 13.6.1. Noise modelling would be undertaken using software adopting methodologies advocated by the IOA GPG. The assessment would take into account wind shear and issues regarding low frequency noise, tonality and amplitude modulation. In the event that exceedances of the associated noise limits are determined for a specified turbine model, mitigation options would be investigated. These may include adoption of quieter turbines; reducing the power rating, and thus the noise emission of particular turbines in specific wind environments; or design of a noise management plan which varies the operation of the wind turbines dependent on the existing wind direction.

13.7 CONSULTATION

- 13.7.1. The Environmental Health department at SBC would be contacted in order to agree on the proposed approach to the survey, assessment and assessment criteria.

13.8 SUMMARY OF EFFECTS

- 13.8.1. The Development is unlikely to result in any significant effects in terms of operational traffic and decommissioning and therefore it is proposed that these elements are scoped out of the noise and vibration assessment. Vibration is also scoped out of the construction and operational phase assessments. However, there is the potential for significant noise effects during the construction and operational phase of the Proposed Development and this has been scoped into the assessment.

14 SOCIO-ECONOMICS, TOURISM AND RECREATION

14.1 INTRODUCTION

- 14.1.1. This chapter considers the potential socio-economic, tourism and recreation effects from the Proposed Development. Generally, wind farms have the potential to have both beneficial and adverse effects on socio-economics, tourism and recreation. Potential beneficial effects input into the national economy; generation of and retention of local jobs through use of local contractors for construction and maintenance work; increased spend in the local community during the construction stage and to a lesser degree during the operational stage with workers staying in the area and using local facilities; community benefits, in line with national guidance: *'of the value equivalent to £5,000 per installed megawatt per annum, index linked for the operational lifetime of the project.'*¹⁴⁰; and further funding and community support schemes such as tourism funds, sports funds and/or educational funding.
- 14.1.2. Negative effects of wind farms are often linked to perceptions and attitudes towards wind energy development, which has the potential to result in reduced use of tourism and recreation facilities and the associated impacts this could have on the local economy.
- 14.1.3. Given the nature and location of the Proposed Development, it has the potential to have effects on the economies of both England and Scotland, and more locally, SBC area, Dumfries and Galloway Council (DGC) area, Northumberland County Council (NCC) area and Cumberland Council (CC) area.

14.2 BASELINE CONDITIONS

THE ECONOMY

- 14.2.1. The number of people working within the UK's Low Carbon and Renewable Energy Economy (LCREE) grew between 2020 to 2021 by 16.4%¹⁴¹. The UK's LCREE also grew its turnover considerably during this period, generating £54.4 billion in turnover, which was a 30.8% increase in 2021 from 2020. In 2022, 40% of the UK's electricity was generated using renewable energy, whilst also exporting 1.9 terawatt hours of electricity to neighbouring countries, generating \$3.59 billion in exports¹⁴². In England between 2020 to 2021, £41.2 billion in turnover was generated. In Scotland for the same period, £8.7 billion was generated in turnover¹⁴³.
- 14.2.2. The EIA Report would identify the baseline economic conditions of the UK, Scotland and the region in which the Proposed Development is located. This includes the Scottish Borders region (including SBC and DGC areas), Northumberland, the Northumberland National Park Authority area and Cumberland Council¹⁴⁴.

¹⁴⁰ Scottish Government (2019) Scottish Government Good Practice Principles for Community Benefits from Onshore Renewable Energy Developments. Available at: <https://www.gov.scot/publications/scottish-government-good-practice-principles-community-benefits-onshore-renewable-energy-developments/documents/> [Accessed April 2023]. Page 5.

¹⁴¹ ONS (2023) Low carbon and renewable energy economy, UK 2021. Available at: <https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/finalestimates/2021#the-uks-low-carbon-and-renewable-energy-economy-2021> [Accessed April 2023].

¹⁴² World Economic Forum (2023) 2022 was a record-breaking year for renewable energy in the UK. Available at: <https://www.weforum.org/agenda/2023/01/2022-renewable-energy-uk-electricity> [Accessed April 2023].

¹⁴³ ONS (2023) Low carbon and renewable energy economy, UK 2021. Available at: <https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/finalestimates/2021#the-uks-low-carbon-and-renewable-energy-economy-2021> [Accessed April 2023].

¹⁴⁴ Cumberland Council was created on 1 April 2023 and comprised Allerdale, Carlisle and Copeland regions.

TOURISM AND RECREATION

- 14.2.3. The UK's tourist economy generated £100.8 billion in 2019, employing over 2 million people¹⁴⁵. The North East of England, which includes Northumberland, generated £4.5 billion from tourism during 2019¹⁴⁶. For Scotland, its tourism industry is estimated to generate £4 billion for its economy each year, with over 40% of all tourism spend being associated with a nature-based attraction¹⁴⁷. It is estimated that tourism comprises 5% of Scotland's Gross Domestic Product (GDP) and employs 7% of its working age population each year¹⁴⁸.
- 14.2.4. The EIA Report would identify the baseline tourism and recreation conditions of the UK, Scotland and the region in which the Proposed Development is located. This includes the Scottish Borders region (including SBC and DGC areas), Northumberland, the Northumberland National Park Authority area and CUA.

PUBLIC ACCESS

- 14.2.5. In Scotland, under the Land Reform (Scotland) Act 2003, everyone has the right to be on and cross land on the provision of responsible behaviour. This right to access is in addition to rights of way and core paths. Core Path Area 66 contains a permissive/customary path that runs through Newcastleton Forest, which is where the Southern portion of the Proposed Development would be constructed¹⁴⁹. The Newcastleton area itself (Core Path Area 65) contains Core Path 114 within the town, with the Core Path Area 65 plan identifying a number of promoted paths and permissive/customary paths in and around Newcastleton Forest. Core Path Plan 64 identifies that Core Path 114 runs close to the Southern portion of the Proposed Development before entering into Northumberland.
- 14.2.6. All core paths, public rights of way, and well known and established tourist routes that have been identified in the landscape and visual impact assessment, within 10km of the Site would be considered in the baseline.

14.3 METHODOLOGY

- 14.3.1. The Socio-economic, Tourism and Recreation chapter would identify the baseline situation as set out above. It would describe the methodology for identifying the levels of sensitivity for each of the receptors identified in the baseline, and then identify the magnitude of change for those receptors affected, and then set out the process for identifying if the Proposed Development would result in a significant effect on those receptors. The significance of effects would be determined using a matrix approach which is set out in **Chapter 3**.

¹⁴⁵ Visit Britain (2019) The value of tourism in England. Available at: <https://www.visitbritain.org/value-tourism-england> [Accessed April 2023].

¹⁴⁶ Visit Britain (2019) The value of tourism in England. Available at: <https://www.visitbritain.org/value-tourism-england> [Accessed April 2023].

¹⁴⁷ NatureScot (2022) Sustainable Tourism. Available at: <https://www.nature.scot/professional-advice/social-and-economic-benefits-nature/tourism#:~:text=Tourism%20is%20one%20of%20seven,for%20people%20to%20visit%20Scotland>. [Accessed April 2023].

¹⁴⁸ Insider (2023) Scottish Tourism Industry. Available at: <https://www.insider.co.uk/all-about/scottish-tourism-industry> [Accessed April 2028].

¹⁴⁹ Scottish Borders Council (no date) Core Paths. Available at: https://www.scotborders.gov.uk/directory/62/scottish_borders_core_paths [Accessed April 2023].

- 14.3.2. A review would be conducted of national and relevant development plan socio-economic planning policies and strategies (including NPF4, and Scottish Borders Local Development Plan 2016, Draft Scottish Borders Council Proposed Local Development Plan 2020).
- 14.3.3. The assessment would focus on the impacts of construction and operation with an understanding that effects from decommissioning would be similar but to a lesser extent, to those of construction.

14.4 POTENTIAL IMPACTS

THE ECONOMY

- 14.4.1. Onshore wind farms can have a positive socio-economic impact in terms of providing employment and income to the economy. For the Proposed Development these may include:
- Supply chain: procurement of goods and services, such as security, catering, hotel facilities or maintenance;
 - Infrastructure: potential upgrade of the road network;
 - Employment: contractors or manufacturers would be required and, if possible, procurement may be local; and
 - Expenditure: new spending power generated from employees directly and indirectly associated with the Proposed Development. An amount of the earning capacity of these individuals would be expected to be spent on items such as shopping, accommodation and leisure.
- 14.4.2. Potential effects on local forestry industries due to the construction and operation of the Proposed Development would be considered in detail, especially given more long term effects from the operation of the Proposed Development upon this industry could occur.
- 14.4.3. Recreation and tourism provisions and businesses may however be temporarily disrupted during construction.
- 14.4.4. There may also be changes to land use on the Site both during construction and operation. There is the potential for greater impacts on the local forestry industry, who would have restricted access to the forests the Proposed Development would occupy during its construction and may be more sensitive to the wind farm when operational.

14.5 CUMULATIVE EFFECTS

- 14.5.1. Cumulative effects from the construction and operation of the Proposed Development and its relation to other, nearby wind farm and large scale development would be considered in detail within the main EIA report. This would include a consideration of the potential cumulative effects on neighbouring regions where these are identified.
- 14.5.2. Cumulative effects can present opportunities as well as adverse effects i.e., several large scale developments can work together to provide better funding, design and support to an area than on their own.
- 14.5.3. The potential cumulative effects from the Proposed Development identified by other environmental disciplines would also be considered if such identified cumulative effects could potentially impact upon tourism & recreational assets.

14.6 MITIGATION

- 14.6.1. Where significant adverse effects are identified, mitigation would be identified in detail within the main EIA Report in order to ensure the potential adverse socio-economic effects of the Proposed Development are minimised and potential positive effects maximised.
- 14.6.2. An example of socio-economic mitigation could be the focus upon the use of local contractors and workers where possible to ensure wealth is contained within the Scottish Borders region. Funds such as Tourism Funds could be established if a need is identified alongside the Community Benefit Funds. Other benefits such as improved access to recreation facilities, via improvement to footpaths, parking areas etc could also be considered.
- 14.6.3. Educational benefits would be offered in the form of enhancement, though the development of apprenticeships, alongside other skill providing opportunities relevant to the renewables industry. Such educational benefits can benefit the Scottish Borders and neighbouring regions.
- 14.6.4. Another form of mitigation could be via biodiversity net gain, and the potential for the conversion of commercial forestry to more natural forestry through the replanting of a broad mixture of trees, helping to make a place more natural and attractive to a wider scope of species and to people. Such mitigation can help local recreational and even tourist activities.
- 14.6.5. Mitigation and enhancement would be developed over time and in consultation and engagement with relevant groups.

14.7 CONSULTATION

- 14.7.1. It has been identified that the main organisations that might hold views regarding the potential socio-economic, tourism and recreation effects of the Proposed Development are the relevant local planning Authorities, Visit Scotland and specific tourism receptors.
- 14.7.2. Upon the completion and submission of the main EIA report, views and feedback would be sought from not just these organisations, but all businesses, tourism & recreational operations that seek to make their views known. All consultation would be appreciated in order to ensure the potential socio-economic, tourist & recreational effects of the Proposed Development are properly considered and potential enhancement and mitigation identified.
- 14.7.3. Consultation with local communities and businesses would also be very important in the directing and implementation of wider benefits, including funding, educational benefits and recreational/tourism improvements (such as improved access to existing or new facilities etc).

14.8 SUMMARY OF EFFECTS

- 14.8.1. There is the potential for significant effects on the economy, tourism, recreation and public access during the construction, operation and to a lesser degree decommissioning of the Proposed Development, and these are therefore scoped into the EIA. The assessment would include potential effects on the identified neighbouring regions, especially with regard to potential effects on their tourism & recreational assets.

15 TELECOMMUNICATIONS, AVIATION AND OTHER CONSIDERATIONS

15.1 INTRODUCTION

15.1.1. This chapter of the Scoping Report sets out the proposed approach to the assessment of a number of other topics that would be considered within the EIA Report.

15.2 EXISTING INFRASTRUCTURE, TELECOMMUNICATIONS AND BROADCAST SERVICES

15.2.1. Specific Advice Sheet Onshore Wind Turbines (Scottish Government, May 2014) identifies that wind turbines might impact on infrastructure, telecommunications and broadcast services. Effects may, for example, include disruption of microwave rebroadcast links or local radio communication systems. The quality of television reception may be affected, through to a lesser extent than prior to the switchover to digital transmissions, and viewers may suffer reduction of picture quality and acoustic interference. Turbines can also potentially interfere with communication networks.

15.2.2. Whilst it is not strictly an EIA issue, it is relevant to note that a range of investigations would be undertaken to establish the presence of existing infrastructure associated with utilities such as water, gas, electricity and telecommunications links to establish either the absence of effects or to identify appropriate mitigation to overcome any effects. These matters would be addressed through consultation with the relevant system operators and during the iterative design process of the Proposed Development as necessary. Where infrastructure cannot be avoided through the iterative design and stand-off buffers, mitigation would be identified in consultation with the relevant bodies and summarised in the EIA Report.

15.3 AVIATION

15.3.1. Specific Advice Sheet Onshore Wind Turbines¹⁵⁰ (Scottish Government, May 2014) identifies that wind turbines might impact on air safeguarding issues. Wind turbines reflect radio waves and can therefore interfere with radar. The reflections from the turbines show up on radar as 'clutter' and radar operators are often concerned that wind farm clutter might affect aviation safety. Due to their height, wind turbines could also potentially present a collision risk to low flying aircraft, interfering with military low-level training flights.

15.3.2. In line with article 222 of the UK Air Navigation Order 2016¹⁵¹ and guidance set out in the associated Civil Aviation Authority (CAA) Policy Statement¹⁵² (June 2017), aviation lighting on the wind turbines would be required given that proposed blade to tip height would exceed 150m above ground level. The potential impacts of aviation lighting would be addressed within the Night-time Lighting Assessment (NLA), which would be reported in the Landscape and Visual chapter of the EIA Report.

15.3.3. As shown in **Figure 1.3.7**, the Site is located entirely within the Ministry of Defence (MOD) high priority low flying consultation area, and the majority of the site is within the NATS primary

¹⁵⁰ [Onshore wind turbines: planning advice - gov.scot \(www.gov.scot\)](https://www.gov.scot) [accessed May 2023]

¹⁵¹ [The Air Navigation Order 2016 \(legislation.gov.uk\)](https://legislation.gov.uk) [accessed May 2023]

¹⁵² [DAP01062017_LightingWindTurbinesOnshoreAbove150mAGL.pdf \(caa.co.uk\)](https://caa.co.uk) [accessed May 2023]

surveillance radar at 200m elevation. In addition, the south of the Site at Newcastleton Forest is largely within the CAA aerodrome buffer for Carlisle Airport.

- 15.3.4. The PfR scoping opinion (**Appendix B**) recommended that discussions should be held with MOD Safeguarding to agree a mitigation scheme against the effects of the proposed turbines on the ATC Radar RAF Spadeadam (Deadwater Fell) and also regarding low flying zones within or near the proposed development. In addition, unlicensed airfields and operators in the area who may have an interest should be identified and any potential impact on the Eskdalkemuir nuclear test monitoring facility.
- 15.3.5. Operational impact of the Proposed Development is therefore proposed to be scoped into the assessment. Construction and decommissioning would be scoped out.

15.4 EMISSION OF POLLUTANTS

DUST AND AIR QUALITY

- 15.4.1. The Site lies in a rural setting comprising forestry land and it is assumed that the air quality in the area is good. The potential impact associated with the construction and decommissioning of the Proposed Development would relate to:
- Dust generated by excavation and earthworks, and the movement of construction vehicles on unpaved access routes; and
 - Construction vehicle exhaust emissions of NO₂ and PM₁₀/PM_{2.5}, which could potentially impact on local air quality.
- 15.4.2. The potential generation of airborne dust would be limited to the duration of the construction and decommissioning works. The majority of dust generated from a source is considered to be deposited within 200m¹⁵³, with concentrations of the finer fractions of dust being significantly diluted beyond this distance, due to atmospheric dispersion and further deposition.
- 15.4.3. Best practice mitigation measures, which are routinely and successfully applied to construction projects throughout the UK, would be detailed within a CEMP and would be implemented to minimise air pollutant releases. These control measures should ensure that there would be no significant impact on sensitive receptors (ecological and people).
- 15.4.4. Construction vehicle exhaust emissions of NO₂ and PM₁₀ would be limited to the duration of the construction and decommissioning works. Given the existing good air quality at, and in proximity to the Site, the contribution of NO₂ and PM₁₀/PM_{2.5} from construction vehicles is not predicted to significantly impact upon local air quality. Construction vehicles would be compliant with legislation on emissions standards and be subject to regular maintenance, details of which would be stated within the CEMP.
- 15.4.5. The potential local air quality impacts associated with dust and particulate matter from construction and decommissioning activities, and from onsite vehicle and plant exhaust emissions during construction and future site maintenance activities, are therefore proposed to be scoped out of the EIA.

¹⁵³ Guidance on the assessment of dust from demolition and construction, Version 1.1 (IAQM, 2014).

- 15.4.6. The air quality impacts associated with the operation of the Proposed Development would relate to exhaust emissions from maintenance vehicles periodically serving the Site and a negligible impact is therefore anticipated. Therefore, potential air quality impacts during operation are proposed to be scoped out of the EIA.

HEAT AND RADIATION

- 15.4.7. The Proposed Development, once operational, would not emit heat or radiation. Therefore, these aspects are not considered relevant and are proposed to be scoped out of the EIA.

LIGHTING

- 15.4.8. Lighting may be required to facilitate construction/decommissioning activities of the Proposed Development. However, significant light pollution during these phases is unlikely as this can be controlled using standard construction practices and good site management (by use of directional lighting for example). Lighting associated with construction/decommissioning would therefore be scoped out of the assessment.
- 15.4.9. The SNH guidance Siting and Designing Windfarms in the Landscape, Version 3 (February 2017) advises that turbines in excess of 150m require visible lighting and that a NLA is required. The Proposed Development includes turbines up to 250m tip height and therefore an NLA would be prepared. The results would be reported in the Landscape and Visual Assessment chapter of the EIA Report and therefore operational lighting is scoped into the EIA.

15.5 SHADOW FLICKER

- 15.5.1. Impacts from shadow flicker would only occur during the operational phase of a wind farm. Shadow Flicker can only occur in sunny weather conditions when the blade of a wind turbine blocks the sunlight passing into a small opening, i.e., a window of a property, on each revolution. This briefly reduces/blocks the intensity of light within the internal room, and therefore causes the perception of a 'flicker'. In the open, shadow flicker doesn't generally cause disturbance, as light outdoors is reflected from all directions. In order for shadow flicker to occur, the receptor must be directly in line with the wind turbines, when the sun is low in the sky.
- 15.5.2. The Scottish Government's Onshore Wind Turbines planning advice note¹⁵⁴ (May 2014) sets out that where separation is provided between wind turbines and nearby dwellings (as a general rule 10 rotor diameters), 'shadow flicker' would not occur. As a result, Shadow Flicker during construction and decommissioning is scoped out.
- 15.5.3. Should turbines be located within 1.75km of a residential property (10 x rotor diameter of 170m plus 50m micro siting), a shadow flicker assessment would be carried out.

15.6 POPULATION AND HUMAN HEALTH

- 15.6.1. Environmentally related population and human health issues resulting from the Proposed Development (both beneficial and adverse) may for example include exposure to traffic emissions, changes in living conditions resulting from noise and increased employment opportunities. It is therefore proposed that population and human health effects of the Proposed Development are

¹⁵⁴ [Onshore wind turbines: planning advice - gov.scot \(www.gov.scot\)](http://www.gov.scot/Onshore-wind-turbines-planning-advice)

incorporated within the relevant technical chapters such as Socio-economics, Traffic and Transport, Noise and Vibration.

- 15.6.2. However, for ease of reference it is proposed that a summary table that identifies the potential population and human health effects and the EIA Report chapter that considers the matter in more detail would be provided (either as an appendix or within a succinct section of the 'Other Considerations' chapter).

15.7 SUSTAINABLE RESOURCE USE

- 15.7.1. Although Wind turbine development can encompass large areas of land, the actual built development covers a relatively small percentage of the land take and in most circumstances, farming and other land-based activities would continue in and around the Site. As a result of this, significant environmental effects in terms of land use are unlikely.
- 15.7.2. In terms of soil and peat, the design would take into account track lengths, turbine foundation design, hardstanding design, compound design etc in order to minimise the amount of soil disturbance. Where soils and peat would be excavated, they would be stored on site in accordance with a Peat Management Plan and CEMP and then used in the restoration of the site post construction to minimise the loss of soil and peat resource.
- 15.7.3. With regards to construction/decommissioning works, the water resource would be managed in accordance with a CEMP, a draft of which would be included in the 'Project Description' chapter of the EIA Report. Effects on surface and groundwater, for example flood risk and pollution risk, would be set out in the Geology, Hydrology and Hydrogeology chapter of the EIA Report.
- 15.7.4. The potential effects of the Proposed Development on biodiversity resource would be addressed within the Ornithology and Ecology chapters of the EIA Report, within which appropriate mitigation would be set out in order to minimise the potential impacts. Mitigation measures would also be detailed in a Habitat Management Plan, which it is expected would be required by planning condition and also within the CEMP.

15.8 MAJOR ACCIDENTS AND DISASTERS

- 15.8.1. The scope for the EIA to consider major accidents and disasters has been initially considered in **Table 15-1** below. Major accidents or disasters have been scoped in where they represent a high risk to the Proposed Development, either from the proposed location or from the project itself. A high risk is considered to be where there is reasonable likelihood of the accident or disaster occurring, or where the effect of the accident or disaster would lead to mitigation which is beyond the usual scope of construction or operational activities. Where an accident or disaster has been scoped in, the EIA Report chapter(s) identified would consider the matter in more detail. This further detail may show that no further assessment is needed, or it may lead onto an appropriate level of assessment and/or mitigation.

Table 15-1 - Major Accidents and Disasters

Major Accident or Disaster	Risk due to location	Risk due to project	Scoped in/out due to risk	Potential Effect	EIA Report Chapter
Biological hazards: epidemics	No	No	Out		
Biological hazards: animal and insect infestation	No	No	Out		
Earthquakes	No	No	Out		
Tsunamis / tidal waves / storm surges	No	No	Out		
Volcanic eruptions	No	No	Out		
Famine / food insecurity	No	No	Out		
Displaced populations	No	No	Out		
Landslide / subsidence	Yes	Yes	In – peat and bog ground conditions are susceptible to landslide. Wind farm construction could trigger an event.	Landslides leading to loss of peatland and pollution of watercourses with peat material.	Site Selection and Design evolution and Geology, Hydrology and Hydrogeology.
Severe weather: storms	Yes	No	In – exposed landscape received regular storm conditions.	Damage to turbines or infrastructure from weather.	Site Selection and Design Evolution (plus other chapters depending if a constraint is still within topple distance).
Severe weather: droughts	No	No	Out		
Severe weather: extreme temperatures	Yes	No	In – severe cold weather could lead to ice build-up on blades.	Ice build-up could lead to ice throw, or to blade damage and throw.	Site Selection and Design Evolution (other chapters depending if a constraint is still within 'safe distance').
Floods	Yes	No	In – land around	Damage to turbines or	Site Selection and Design

Major Accident or Disaster	Risk due to location	Risk due to project	Scoped in/out due to risk	Potential Effect	EIA Report Chapter
			watercourses on site is within identified flood zones.	infrastructure from flooding or increase in flood risk elsewhere from development in flood zones.	Evolution and Hydrology, Hydrogeology & Geology.
Terrorist incidents	No	No	Out		
Cyber attacks	No	No	Out		
Disruptive industrial action	No	No	Out		
Public disorder	No	No	Out		
Wildfires	Yes	No	In – Proposed Development is located within two forests that are used for commercial forestry purposes.	Harm to turbines, equipment, infrastructure and staff attending/managing the site.	Site Selection, Design Evolution and H&S legislation and guidelines.
Severe space weather	No	No	Out		
Poor air quality events	No	No	Out		
Transport accidents	No	Yes	In – abnormal loads and increase in traffic from construction.	Abnormal loads or an increase in traffic could lead to an increased risk of accidents. Highway network may be unsuitable for such traffic, further increasing accident risk.	Site Selection and Design Evolution and Traffic and Transport.
Industrial accidents	No	Yes	In – from construction and maintenance activities.	Manual labour, working at height and use of specialist plant bring	Construction activities are covered by separate H&S legislation and guidelines.

Major Accident or Disaster	Risk due to location	Risk due to project	Scoped in/out due to risk	Potential Effect	EIA Report Chapter
				risk of accidents.	Site Selection and Design Evolution, Geology, Hydrology, and Hydrogeology and Ecology (pollution).
Electricity, gas, water supply or sewerage system failures	No	Yes	In – site contains electricity and may contain gas infrastructure.	Construction activities or turbine collapse could damage electricity or gas infrastructure.	Site Selection and Design Evolution; and Existing Infrastructure, Telecommunications and Broadcast Services.
Urban fires	No	No	Out		

16 SUMMARY OF MITIGATION (EMBEDDED AND ADDITIONAL)

16.1.1. A table setting out a summary of the proposed mitigation measures that would be required to reduce or remove a significant effect would be set out in the EIA Report, and a template of this is set out below in **Table 16-1**.

Table 16-1 - Summary of Environmental Measures to be Implemented.

Environmental Measures	Responsibility for Implementation	Compliance Mechanism	EIA Report Section Reference

17 PROPOSED OUTLINE CONTENTS LIST FOR EIA REPORT

17.1.1. A proposed contents list (subject to change) for the EIA Report is set out below:

- **Non-Technical Summary** as a stand-alone document;
- **Chapter 1, Introduction** - background information about Liddesdale Wind Farm and an overview of the Proposed Development;
- **Chapter 2, EIA Process** - an overview of the EIA process, its regulatory context and an outline of the methodology used to assess impacts and ensure a consistent and transparent approach to assessment including a description of the scoping and consultation process that assisted in the identification of likely significant environmental effects to be given further consideration;
- **Chapter 3, Site Selection and Design Evolution** - details of the site selection process and assessment of alternatives within the process of design evolution;
- **Chapter 4, Legislation, Energy Policy and Planning Policy Context** - an overview of national, regional and local planning policy that applies to the proposed extension;
- **Chapter 5, Description of the Proposed Development** - details of the design and layout of the proposed development and how it would be constructed, operated and decommissioned;
- **Chapter 6, Renewable Energy and Carbon Balance** - details on relevant climate change policy, expected energy yield, carbon dioxide savings, carbon payback and peat management;
- **Chapters 7 - 16** provide the assessment of likely significant environmental effects in respect of the following topics:
 - Landscape and Visual;
 - Cultural Heritage;
 - Ornithology;
 - Ecology (including peat);
 - Forestry;
 - Geology, Hydrology and Hydrogeology;
 - Traffic and Access;
 - Noise;
 - Socio-economics, Tourism and Recreation; and
 - Telecommunications, Aviation and other considerations.
- **Chapter 17, Summary of Mitigation** – details a summary of the mitigation measures proposed and residual significant effects for the Proposed Development.

18 CONSULTATION AND ENGAGEMENT

- 18.1.1. Consultation and engagement is a key part of the EIA Process, and fundamental to the iterative design process. EDF-R take consultation and more widely, engagement, very seriously. At least 2 formal consultation events would take place and the results of which would be reported in a Consultation Report. Engagement with the community will start in June 2023 with:
- A leaflet drop to local residents within 8km of the Site, including settlements close to the 8km boundary;
 - Information available online through a virtual village hall exhibition;
 - In person formal consultation events to introduce the project and answer any questions the local community may have on the Proposed Development or as a result of viewing the proposal at the virtual village hall (expected to take place in August/ September 2023); and
 - Attendance at upcoming community events such as the Borders Union Show and Holm Show (Summer 2023).
- 18.1.2. Consultation and engagement would be reported within a dedicated Consultation Report which would accompany the application submission. The EIA technical consultation would also be summarised in the EIA Report.
- 18.1.3. Liddesdale Wind Farm is committed to promoting dialogue with statutory and non-statutory consultees and the local community. The following statutory consultees, non-statutory consultees and interested parties would be notified of the Proposed Development:
- **Statutory Consultees:**
 - Scottish Borders Council;
 - NatureScot;
 - SEPA; and
 - Historic Environment Scotland.
 - **Non-Statutory Consultees**
 - Northumberland National Park Authority;
 - Dumfries and Galloway Council;
 - Cumberland Council;
 - Northumberland County Council;
 - Scottish Water;
 - Marine Scotland;
 - Forestry and Land Scotland;
 - Transport Scotland;
 - Fisheries Management Scotland;
 - Edinburgh Airport;
 - Newcastle Airport;
 - Carlisle Airport;

- Glasgow Prestwick Airport;
 - Association of Salmon Fisheries Board;
 - BT;
 - Civil Aviation Authority (CAA) – Airspace;
 - National Air Traffic Service (NATS);
 - The Crown Estate;
 - Defence Infrastructure Organisation;
 - Joint Radio Company;
 - RSPB Scotland;
 - Mountaineering Council of Scotland;
 - John Muir Trust;
 - Scottish Wildlife Trust;
 - Nuclear Safety Directorate;
 - British Horse Society;
 - Scottish Rights of Way and Access Society (ScotWays);
 - Visit Scotland;
 - OFCOM;
 - Garden History Society of Scotland;
 - Airwave Solutions;
 - Arquiva; and
 - Raptor Study Group.
- The following interested parties would also be notified:
- Local Residents;
 - Community Councils;
 - Parish Councils; and
 - Ward Members.



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