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Ray II Wind Farm

Scoping Report

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GLOSSARY	
2008 Act	The Planning Act 2008
2025 Act	The Planning and Infrastructure Act 2025
Applicant	Vattenfall Wind Power Ltd
Assessment Principles	Overarching principles that applicants and the Secretary of State must use when assessing nationally significant energy projects
Birds of Conservation Concern (BoCC)	Birds of Conservation Concern (BoCC) provides the status of all regularly occurring birds in the UK, Channel Islands and Isle of Man. The current version is BoCC 5. Birds of highest conservation concern will appear on the Red List.
Cable Corridor Options	The connection options of the Proposed Development to the National Grid
Construction Environmental Management Plan (CEMP)	A site-specific environmental management plan setting out the environmental management procedures, legislation and requirements for a particular project and site.
Determining authority	The authority granting consent
Drinking Water Protected Areas (DWPA)	The water in ditches, streams, lochs and possibly groundwater in these areas is protected and likely to be taken to water treatment works, where it is treated and provided to the public as drinking water.
EC Birds Directive	Within the EU, the key legislative measures providing for the protection of birds are Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds
Effect	The change in condition of an environmental receptor (beneficial or adverse) arising as a result of a change brought about by the construction or operation of the Proposed Development.
Environmental Impact Assessment (EIA)	A formal process set down in The Electricity Works (EIA) (Scotland) Regulations 2000 (as amended in 2008) used to systematically identify, predict and assess the likely significant environmental impacts of a proposed project or development.
Generic Impacts	Generic impacts that are common across most types of energy infrastructure, regardless of technology
Gross Value Added (GVA)	A measure of economic output — are likely to occur at the local and national economy level

Habitat Regulations	The Conservation of Habitats and Species Regulations 2017
Habitats Regulations Appraisal (HRA)	Appraisal to determine whether the Proposed Development will give rise to Likely Significant Effects on European designated sites in line with the Conservation (Natural Habitats, &c.) Regulations 1994.
Historic Environment Record (HER)	Sources of, and signposts to, information relating to landscapes, buildings, monuments, sites, places, areas and archaeological finds spanning more than 700,000 years. Based in mainly local authorities, they are used for planning and development control but also fulfil an educational role.
Historic Environment Scotland (HES)	Organisation responsible for investigating, caring for and promoting Scotland's historic environment.
Impact	Physical constructions or activities that may change or disturb the surrounding environment.
Inter-cumulative	The combined effect from the impact of several developments that may on an individual basis be insignificant but cumulatively may be significant
Intra-cumulative	The combined effect of individual impacts from the same development (e.g., noise, airborne dust or traffic) on a single receptor
Mitigation	Term used to indicate avoidance, remediation or alleviation of adverse impacts
NatureScot	Scotland's statutory nature conservation agency (formerly Scottish Natural Heritage (SNH)).
Overhead line (OHL)	An electric line installed above ground, usually supported by lattice steel towers or poles.
Park	The Northumberland National Park
Proposed Development	Ray II Wind Farm and its associated development
Ramsar	A wetland site designated to be of international importance under the Ramsar Convention.
Report	This scoping report
Requirements	Requirements set out for DCO applications
Scoping Boundary	The anticipated route of grid connection is approximately 20 km south of the Site to the substation at Fourstones, Hexham. Together, the Site and the Cable Corridor Options form the Proposed Scoping Boundary

Scoping Layout	The current layout of the Proposed Development
Secondary mitigation	Measures that require further activity to typically reduce or offset the residual impacts of a development
Sites of Special Scientific Interest (SSSI)	Areas of national importance. The aim of the SSSI network is to maintain an adequate representation of all natural and semi-natural habitats and native species across Britain.
Special Area of Conservation (SAC)	An area designated under the EC Habitats Directive to ensure that rare, endangered or vulnerable habitats or species of community interest are either maintained at or restored to a favourable conservation status.
Special Protection Area (SPA)	An area designated under the Wild Birds Directive (Directive74/409/EEC) to protect important bird habitats. Implemented under the Wildlife and Countryside Act 1981.
Study Area	A defined area for the consideration of environmental effects (including direct, indirect and cumulative) on each relevant factor listed under Regulation 4(3) of the EIA Regulations.
UK Habitat Survey (UKHab)	The UK Habitat Classification is a unified and comprehensive approach to classifying habitats, designed to provide a simple and robust approach to survey and monitoring for the 21st Century.

ACRONYMS	
AA	Appropriate Assessment
AIL	Abnormal Indivisible Load
ALRA	Abnormal Load Route Assessment
ALV	Abnormal Load Vehicle
AM	Amplitude Modulation
ANO	Air Navigation Order
AOD	Above Ordnance Datum
APS	Annual Population Survey
AQMA	Air Quality Management Area
ASNW	Ancient Semi-Natural Woodland
ATC	Automatic Traffic Counts
AWI	Ancient Woodland Inventory
BAI	Bat Activity Index
BCT	Bat Conservation Trust

ACRONYMS	
BESS	Battery Energy Storage System
BGS	British Geological Survey
BNG	Biodiversity Net Gain
BoCC	Birds of Conservation Concern
BPM	Best Practicable Means
BRES	Business Register and Employment Survey
BSI	British Standards Institution
BTO	British Trust for Ornithology
CAA	Civil Aviation Authority
CAPEX	Capital Expenditure
CCC	Climate Change Committee
CCIA	Climate Change Impact Assessment
CCRA	Climate Change Risk Assessment
CCTV	Closed-Circuit Television
CDA	Critical Drainage Area
CDM	Construction (Design and Management) Regulations 2015
CHMP	Cultural Heritage Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
CIfA	Chartered Institute for Archaeologists
CIRIA	Construction Industry Research and Information Association
CLVIA	Cumulative Landscape and Visual Impact Assessment
CMRA	Coal Mining Risk Assessment
CNP	Critical National Priority
CNS	Communications, Navigation and Surveillance
CO_2	Carbon Dioxide
COMAH	Control of Major Accident Hazards
CoPA	The Control of Pollution Act 1974
CRTN	Calculation of Road Traffic Noise
CSAC	Candidate Special Areas of Conservation
DAS	Design and Access Statement
dB	Decibel
DBW	Daytime Bat Walkover
DCO	Development Consent Order

ACRONYMS	
DEFRA	Department for Food, Environment and Rural Affairs
DEMP	Decommissioning Environmental Management Plan
DESNZ	Department for Energy Security and Net Zero
DfT	Department for Transport
DLL	District Level Licensing
DMRB	Design Manual for Roads and Bridges
DSM	Digital Surface Module
DTM	Digital Terrain Model
DWPA	Drinking Water Protected Areas
EcIA	Ecological Impact Assessment
ECoW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
ELC	European Landscape Convention
EPA	The Environmental Protection Act 1990
ERIC	Environmental Records Information Centre
ERM	Environmental Resources Management Ltd
ES	Environmental Statement
ESQCR	Electricity Safety, Quality and Continuity Regulations
EU	European Union
FAR	Further Assessment Required
FRA	Flood Risk Assessments
FTE	Full-Time Equivalent
GCN	Great Crested Newt
GHG	Greenhouse Gas
GIS	Geographical Information Systems
GLTA	Ground Level Tree Assessment
GLVIA	Guidelines for Landscape and Visual Impact Assessment
GP	Gravel Pit
GPG	Good Practice Guide
GVA	Gross Value Added
HCA	Habitat Condition Assessment
HDD	Horizontal Directional Drilling
HE	Historic England

ACRONYMS	
HER	Historic Environment Record
HGV	Heavy Goods Vehicles
HIA	Heritage Impact Assessment
HIS	Habitat Suitability Index
HMMP	Habitat Management and Monitoring Plan
HPI	Habitats of Principal Importance
HRA	Habitats Regulations Appraisal
ICCI	In-Combination Climate Change Impact
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IEF	Important Ecological Features
IEMA	Institute of Environmental Management and Assessment
IFP	Instrument Flight Procedures
IMD	Index of Multiple Deprivation
IoA	Institute of Acoustics
IOF	Important Ornithological Feature
ISEP	Institute of Sustainability and Environmental Professionals
JRC	Joint Radio Company
KM	Kilometer
LAQM TG	Local Air Quality Management Technical Guidance
LB	Listed Buildings
LBAP	Local Biodiversity Action Plan
LDP	Local Development Plan
LFA	Low Flying Areas
LGV	Light Goods Vehicle
LIDAR	Light Detection and Ranging
LNR	Local Nature Reserves
LNRS	Local Nature Recovery Strategy
LSOA	Local Super Output Area
LVIA	Landscape and Visual Impact Assessment
LWGS	Local Wildlife and Geological Site
MAGIC	Multi-Agency Geographic Information for the Countryside
MATS	Manual of Air Traffic Services
MBNL	Mobile Broadband Network Limited

ACRONYMS	
MoD	Ministry of Defence
MoRPh	Modular River Physical Survey
MPA	Marine Protected Area
MW	Megawatts
NATS	National Air Traffic Services
NBN	National Biodiversity Network
NBR	Northumberland Bird Report
NCC	Northumberland County Council
NCN	National Cycle Network
NECA	North East Combined Authority
NERC	Natural Environment and Rural Communities
NFCC	National Fire Chief Council
NGET	National Grid Electricity Transmission
NHLE	Historic England
NMU	Non-Motorised User
NPA	National Park Authority
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NPSE	Noise Policy Statement for England
NRMM	Non-Road Mobile Machinery
NRSWA	New Roads and Street Works Act 1991
NRW	Natural Resources Wales
NSIP	Nationally Significant Infrastructure Project
NSN	National Site Network
NVC	National Vegetation Classification
NWT	Northumberland Wildlife Trust
OAM	Other Amplitude Modulation
oCEMP	Outline Construction Environmental Management Plan
oCTMP	Outline Construction Traffic Management Plan
oDEMP	Outline Decommissioning Environmental Management Plan
OHL	Overhead Line
oLEMP	Outline Landscape and Ecology Management Plan
ONS	Office for National Statistics

ACRONYMS	
OPEX	Operational Expenditure
oPMP	outline Peat Management Plan
OS	Ordnance Survey
oTMP	Outline Traffic Management Plan
OUV	Outstanding Universal Value
PAC	Pre-Application Consultation
PAWS	Plantation on Ancient Woodland Sites
PINS	Planning Inspectorate
PLHRA	Peat Landslide Hazard Risk Assessment
PPG	Planning Practice Guidance
PPG5	Pollution Prevention Guidelines 5
PPP	Pollution Prevention Plan
PRA	Preliminary Roost Assessment
PRF	Potential Roosting Feature
PRoW	Public Rights of Way
PSPA	Potential Special Protection Area
PWS	Private Water Supply
RADAR	RAdio Detection And Ranging
RCA	River Condition Assessment
RPG	Registered Historic Parks and Gardens
RSPB	Royal Society for the Protection of Birds
RTC	Road Traffic Collision
RVAA	Residential Visual Amenity Assessment
SAC	Special Areas of Conservation
SES	Socio-Economic Statement
SIS	Spectrum Information System
SLVIA	Seascape, Landscape and Visual Impact Assessment
SM	Scheduled Monument
SoS	Secretary of State
SPA	Special Protection Area
SPP	Species Protection Plan
SSSI	Sites of Special Scientific Interest
SuDS	Sustainable Drainage Systems

ACRONYMS	
TA	Transport Assessment
TCC	Temporary Construction Compounds
TGN	Technical Guidance Note
TN	Target Notes
UGC	Underground Cables
UK Hab	UK Habitat Classification
UKFS	United Kingdom Forest Standard
UXO	Unexploded Ordnance
VP	Vantage Point
WCA	Wildlife and Countryside Act
WeBS	Wetland Bird Survey
WFD	Water Framework Directive
WHS	World Heritage Site
WSI	Written Schemes of Investigation
WTS	Wind Turbine Syndrome
WTSR	Wind Turbine Safety Rules
WWI	World War I
WWII	World War II
ZoI	Zone of Influence
ZTV	Zone of Theoretical Visibility

1. INTRODUCTION

1.1 OVERVIEW

Vattenfall Wind Power Ltd (hereafter referred to as 'the Applicant') is preparing an application for development consent to be submitted to the Planning Inspectorate (PINS) to construct, operate, maintain and decommission Ray II Wind Farm and its associated development (the 'Proposed Development'). The Proposed Development is located adjacent to the existing operational Ray Wind Farm, approximately 1.2 kilometres (km) northeast of West Woodburn, 3 km south of Elsdon, and 3.2 km northwest of Kirkwhelpington, in Northumberland.

The Proposed Development will comprise of up to 20 wind turbines of up to 155 meters (m) rotor diameter and up to 230 m tip heights, and an on-Site Battery Energy Storage System (BESS). It also includes an on-Site substation and supporting infrastructure, including access tracks, landscaping, habitat management, biodiversity enhancement and amenity improvements, and associated grid connection infrastructure which would allow for electricity to be exported to the National Grid. The anticipated route of grid connection is approximately 20 km south of the Site to the substation at Fourstones, Hexham. At this time, it is anticipated that the access route to the Site will be from the Port of Blyth, this will be confirmed, along with any associated development required within the Environmental Statement ('ES'). Together, the Site and the Cable Corridor Options form the Proposed Scoping Boundary (the 'Scoping Boundary') as shown on **Figure 1.1: Site Location**.

As the Proposed Development will comprise an onshore wind energy generating station with an installed capacity exceeding 100 megawatts (MW), it falls within the definition of a Nationally Significant Infrastructure Project ('NSIP') under Section 14(1)(a) and Section 15(2) of the Planning Act 2008, and as an NSIP the Applicant is required to make an application for a Development Consent Order (DCO), to be determined by the Secretary of State (SoS).

This scoping report ('Report') is submitted as part of the pre-application process under the NSIP consenting regime and constitutes a formal request to PINS for a scoping opinion, in accordance with the requirements of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended) ('EIA Regulations'). The EIA Regulations set out the types of development which must be and may be subject to an EIA. The Applicant considers the Proposed Development is an EIA development in terms of the EIA Regulations and as such an EIA is required and an ES will be submitted

with the Application. This Report therefore constitutes notice under Regulation 8(1)(b) of the EIA Regulations. The purpose of this Report is to seek the opinion of PINS, on behalf of the SoS, as to the proportionate scope and level of detail to be included in the ES that accompanies the Application for the Proposed Development.

1.2 THE APPLICANT

Vattenfall Wind Power Ltd is the UK onshore and offshore wind development and generation subsidiary of Vattenfall AB, a Swedish state-owned energy company and one of Europe's largest electricity and heat producers. The company is part of Vattenfall's wider UK operations, which focus on renewable power generation and the transition to fossil-free energy.

Vattenfall's UK portfolio represents its most material international onshore wind market, with an estimated 450-500 MW of operational onshore capacity. Key operational assets include Pen y Cymoedd (228 MW), the largest onshore wind farm in England and Wales, alongside the Ray wind farm (54.4MW) in Northumberland. In addition to established sites such as Clashindarroch (37MW), Edinbane (41MW) and Swinford (27MW). In addition, Vattenfall is progressing a pipeline of approved and developing projects, including Clashindarroch II (63MW) and Ourack (105MW), which will further expand its UK onshore footprint once operational.

The Ray Wind Farm is located adjacent to the Proposed Development. It became operational in 2017 and is operated by the Applicant. The Ray Wind Farm project has a capacity of 54.4 MW across 16 turbines, supported by a 20 MW/45.5 MWh battery system which was installed in 2023. It generates enough electricity to power 30,000 homes annually. The total investment included £90 million in capital expenditure and £60 million in operational expenditure. A community fund of £250,000 per year (index-linked) is committed for 25 years. In partnership with Ray Estate, the project includes 130 ha of habitat management and has saved 487,000 tonnes of carbon to date.

1.3 OBJECTIVES OF THIS REPORT

The purpose of this Report is to provide PINS and consultees with information on the proposed scope of the EIA including the presentation of baseline conditions and the proposed approach for assessing the Proposed Development (such as study areas, survey requirements and methodology). This Report identifies the environmental receptors that may be affected by the Proposed Development and the proposed impacts on these receptors that will be

assessed for likely significant effects. The Report also sets out the impacts and receptors which the Applicant proposes are scoped out and on what basis they will be scoped out. This will allow PINS and consultees to provide an informed opinion on the Proposed Development and the scope, methodology of assessments included in, and the structure of, the ES.

Where the Applicant is proposing to 'scope out' particular elements from the EIA, appropriate information and justification is provided within this Report. The intention is to ensure that the ES remains focused on any potential likely significant effects on receptors likely to be impacted by the Proposed Development.

Regulation 10 (3) of the EIA Regulations states that a scoping request must be accompanied by:

- *(a) a plan sufficient to identify the land* (See **Figure 1.1: Site Location**);
- *(b) a description of the proposed development, including its location and technical capacity* (See **Chapter 2** of this Report);
- *(c) an explanation of the likely significant effects of the development on the environment* (as described within **Chapters 6-17** of this Report); and
- *(d) such other information or representations as the person making the request may wish to provide or make.*

Whilst this Report seeks to establish the overall framework for the EIA in relation to the environmental receptors and, impact and likely significant effects based on information that is currently available, the exact scope of the EIA will be influenced by the scoping opinion received, the on-going design evolution of the Proposed Development, and through ongoing baseline data collection (e.g. field surveys etc.) and continued liaison with consultees.

Scoping questions are presented throughout this Report and are summarised in **Appendix A: Summary of Questions to Consultees**. The aim of these questions is to assist PINS and consultees in forming the scoping opinion. Please note this is not an exhaustive list and feedback is welcomed on any issues considered to be relevant to the Proposed Development. The Applicant will ensure that regular and continued liaison with key consultees is carried out and documented, such as through Statements of Common Ground where appropriate, on the scope of the EIA.

1.4 REPORT CONTENT AND STRUCTURE

This Report was authored by Environmental Resources Management Ltd (ERM) with the exception of **Chapters 4, 8, and 16** which were produced either

wholly by, or in collaboration with, other consultants, as presented in the chapter list below. The Report is structured as follows:

- Chapter 1: Introduction;
- Chapter 2: The Proposed Development;
- Chapter 3: EIA Process;
- Chapter 4: Policy and Legislative Context (David Bell Planning Associates);
- Chapter 5: Design Iteration and Layout;
- Chapter 6: Landscape and Visual Impact;
- Chapter 7: Cultural Heritage and Archaeology;
- Chapter 8: Ornithology (MBEC);
- Chapter 9: Ecology and Nature Conservation;
- Chapter 10: Geology and Peat;
- Chapter 11: Water Resources and Flood Risk;
- Chapter 12: Access, Traffic and Transport;
- Chapter 13: Noise;
- Chapter 14: Climate Change and Greenhouse Gas Emissions;
- Chapter 15: Socio-Economics, Tourism and Recreation;
- Chapter 16: Other Issues:
  - Telecommunications and Utilities (Pager Power);
  - Aviation (Pager Power);
  - Shadow Flicker;
  - Air Quality;
  - Forestry (RTS Forestry);
  - Human Health;
  - Major Accidents and Disasters; and
  - Cumulative Effects;
- Chapter 17: Conclusions;
- Appendix A: Summary of Questions to Consultees;
- Appendix B: Figures; and
- Appendix C: Cultural Heritage and Archaeology Appendices.

1.5 THE EIA TEAM

This Report has been prepared by ERM, with selected additional technical input provided by David Bell Planning Associates, MBEC, Pager Power, and RTS Forestry, on behalf of the Applicant.

ERM is the largest dedicated sustainability company in the world and has over 50 years of experience in the preparation of Environmental Assessments in the UK and globally. The project team are competent experts with extensive experience of undertaking EIA work for renewable developments across the UK, and meet the terms and requirements of Regulation 14(4) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended). The ES will outline the relevant expertise, experience and qualifications of the experts.

2. THE PROPOSED DEVELOPMENT

2.1 INTRODUCTION

This chapter describes the Proposed Development and provides information on its location, physical characteristics, proposed components and design. The layout of the Proposed Development will be subject to an iterative design process as part of the EIA.

The Proposed Development is expected to comprise up to 20 turbines with a tip height up to 230 m, a BESS, on-Site substation, associated grid connection of approximately 20 km to connect to Fourstones Substation, and other associated infrastructure (expanded on in **Section 2.4**). The Proposed Development is anticipated to have a generating capacity of approximately 166 MW.

2.2 THE SITE AND SURROUNDING AREA

The Site is located at British National Grid (BNG) Reference NY 943 894 in Northumberland, approximately 1.2 km northeast of West Woodburn, 3 km south of Elsdon and 3.2 km northwest of Kirkwhelpington. Further afield, the largest towns are Rothbury (14 km northeast), Morpeth (20 km east), and Hexham (23 km south). The location and extent of the Site (and Cable Corridor Options) are shown on **Figure 1.1: Site Location**.

The Site spans land to the east and west of the A696, comprising a mix of wetland, heathland, and commercial coniferous forestry. The eastern section of the Site (to the east of the A696), consists predominantly of unenclosed moorland habitats, dominated by wetland and heathland, and enclosed fields managed for sheep and cattle rearing. The western section (to the west of the A696) is dominated by commercial coniferous plantation. Several watercourses are present including Ottercops Burn in the east and Black Burn in the west of the Site.

Across the Site, elevation varies moderately between approximately 230–320 m AOD, forming a gently undulating upland landscape. To the east, land falls gradually towards the upper tributaries of the River Rede, while the western extent includes minor drainage channels associated with local forestry operations.

The operational Ray Wind Farm, located south of the Site on the western side of the A696, establishes a clear renewable-energy land use context within the surrounding area. Ray Wind Farm is a 16 turbine, 54.4 MW development that

has been operational since 2017. A BESS was added to the Ray Wind Farm development in 2023.

The A696 provides the primary access route, linking the Site to local settlements and serving as the main transport corridor through this sparsely populated area. The wider landscape includes isolated farmsteads, small clusters of rural dwellings, and extensive areas of upland forestry and moorland typical of central Northumberland.

Within the surrounding area, several statutory ecological and landscape designations are present, including Sites of Special Scientific Interest (SSSI) and Special Areas of Conservation (SAC), as well as Northumberland National Park. Although no such designations lie within the Site boundary, their proximity has informed early constraints mapping and design considerations. Additional information on exact distances of designations can be found in **Chapter 6: Landscape and Visual Impact** and **Chapter 9: Ecology and Nature Conservation**.

There are 6 designated heritage assets (Listed Buildings and Scheduled Monuments) within the Site. There are additional heritage assets in the surrounding area, further detail on this baseline can be found in **Chapter 7: Cultural Heritage and Archaeology**.

2.3 CABLE CORRIDOR OPTIONS

The grid connection for the Proposed Development is anticipated to be at the 275 kV Fourstones Substation which is located approximately 20 km to the south of the Site near the town of Hexham, and is owned and operated by National Grid Electricity Transmission (NGET).

The grid connection route is currently being investigated, and therefore Cable Corridor Options are referred to within this Report. These are the route corridors currently being considered for the alignment of the grid connection between the Site and Fourstones Substation.

The Cable Corridor Options detailed in this Report are wider than would be required for the grid connection. At this stage in the design process, and for the purposes of scoping, the Cable Corridor Options are corridors of approximately 1 km in width. These corridors will be refined as part of the design, consultation and EIA process and the grid connection route(s) included within the planning application submission will be assessed within the ES.

It is currently unknown whether the grid connection will be Underground Cables (UGC) or Overhead Line (OHL), or a combination. The connection

design will be refined throughout the EIA process and will be assessed within the ES. The EIA will address both OHL and UGC as applicable, and the full range of associated environmental receptors and likely significant effects for each.

The Cable Corridor Options are shown on **Figure 1.1: Site Location**. The area of the proposed Cable Corridor Options is a mixture of habitats including farmland (grazing pasture and arable), bog, heathland, woodland (deciduous and coniferous plantation), and watercourses.

The Cable Corridor Options, currently include three northern options merging into one main route corridor to the southern connection point as summarised below:

- The western option (Route Option 1) starts from Wishaw in the southeast of the Raylees plantation, heads south to Linnheads, then southwest to the north of Stiddlehill Common, then south passing to the west of Aid Crag, Aid Moss and Great Wanney Crag by Sappers' Pike, then south to the west of Green Rigg Wind Farm;
- The central option (Route Option 2) starts from the operational Ray wind farm, heading south over moorland, then southwest passing adjacent to the north of Sweethope Loughs, and through forestry to the southeast of Great Wanney Crag, then through the Green Rigg wind farm;
- The western and central options merge to the west of the Green Rigg Wind Farm.
- The eastern option (Route Option 3) starts from the southeastern end of the Proposed Development near Raechester. It heads southeast, then southwest to the southeast of Sweethope Loughs and Sweethope Moss, through a woodland plantation and moorland area to the north of Colt Crag reservoir;
- The western, central and eastern options merge into one route corridor by Middle Cowden, to the west of Colt Crag reservoir. The route then heads southwest, then south, across the River North Tyne, to the west of Haughton Strother, across Hadrian's Wall, and connecting to Whinnyhill substation near the village of Fourstones, c. 550 m northeast of the River Tyne and c. 4 km NW of Hexham.

2.4 SITE INFRASTRUCTURE

The principal components of the Proposed Development are expected to include:

- up to 20 three-bladed horizontal axis wind turbines of up to 230 m maximum tip height and 155 m maximum rotor diameter. The wind turbines are anticipated to be nominally rated at approximately 8.3 MW;
- at each wind turbine, associated low to medium voltage transformers and related switchgear;
- wind turbine foundations;
- hardstand areas for erection cranes and laydown / storage areas at each wind turbine location;
- works to facilitate vehicular access to the Site including a network of new and upgraded on-site tracks, including site entrance points from the public road network;
- watercourse crossings;
- a substation compound containing electrical infrastructure including foundations, control building with foundations, welfare facilities, material laydown, vehicular parking, storage areas and a communications mast;
- permanent meteorological mast for monitoring wind speed and turbine performance;
- a network of buried electrical and communication cables and water supply, including Closed-Circuit Television (CCTV) and lighting;
- infrastructure works including boundary treatments, fencing and security equipment, earthworks, surface water management and any other works identified as necessary to enable the Proposed Development;
- landscaping, habitat management, biodiversity enhancement and amenity improvements;
- concrete batching plant(s);
- borrow pits (dependent on availability of stone within the Site);
- temporary construction and storage compounds;
- grid connection cables to connect the on-Site infrastructure to Fourstones substation and a new bay adjacent to the existing substation; and
- off-Site highways works to facilitate abnormal load access.

The proposed layout of the Proposed Development is detailed in **Figure 2.1: Site Layout**.

2.4.1 TURBINES

The candidate turbine for this Report is a 3-bladed, horizontal-axis 8.3 MW model, with a hub height of 137 m and a maximum tip height of 230 m. The final turbine supplier will be selected through a competitive procurement

process. For the purposes of the EIA, the tallest turbine will be used as a maximum design scenario and will have a maximum tip height of 230 m. As the worst-case candidate turbine model may vary between disciplines, it will be clearly identified within each relevant chapter of the ES to support the assessment of likely significant effects and ensure that a reasonable worst-case scenario is considered. The hub height and turbine specifications will be considered further through the EIA process.

Each wind turbine will be installed on a foundation, the design of which will be determined by the selected turbine model and site-specific ground conditions. A transformer will be required for each turbine. Depending on the turbine type, transformers may be housed internally or positioned externally. For the purposes of this Report and the EIA, it is assumed that transformers will be located externally, adjacent to each turbine within the hardstanding area. External transformers are considered to be the maximum design scenario.

A crane pad will also be required next to each turbine, consisting of a hardstanding area. Its exact size and location will depend on the turbine supplier's specifications, the crane used for installation, and ground conditions. The EIA will consider indicative maximum dimensions for crane pads, along with an appropriate micro-siting allowance. The crane pad will be retained for the lifetime of the Proposed Development.

As the proposed turbine heights are in excess of 149.9 m, there will be a statutory requirement for an aviation lighting scheme in accordance with Article 222 of the Air Navigation Order 2016. A reduced lighting scheme (not all turbines lit) will be prepared and discussed with the Civil Aviation Authority (CAA), Ministry of Defence (MOD) and other relevant consultees.

The layout of the Proposed Development will be subject to environmental, commercial and technical constraints considered through the EIA process. The proposed indicative turbine locations are presented in **Table 2.1** below and **Figure 2.1: Site Layout**.

TABLE 2.1 PROPOSED TURBINE LOCATIONS

Turbine Number	Turbine Location (British National Grid)	
	X	Y
1	395224	589950
2	397424	588869
3	397654	588271

Turbine Number	Turbine Location (British National Grid)	
	X	Y
4	398234	587734
5	394157	588367
6	393738	588203
7	393309	588524
8	392363.	588425
9	392303	588791
10	392256	589972
11	391789	589889
12	391652	588625
13	390883	589025
14	390971	589501
15	396041	589407
16	396765	590166
17	395166	588015
18	392176	589607
19	390877	588377
20	390529	588560

2.4.2 BATTERY ENERGY STORAGE SYSTEM

A BESS is being considered to support the operational flexibility of the Proposed Development by enabling the storage and release of electricity to support grid stability. The BESS is anticipated to consist of modular, containerised units housing lithium-ion battery racks, inverters and associated control equipment, similar in scale and appearance to a small on-site substation building.

At this time, the BESS parameters are 180 m by 100 m with a capacity of 50 MW. The final configuration, footprint, and enclosure design would be confirmed through detailed design following consent and prior to construction.

2.4.3 ELECTRICAL INFRASTRUCTURE

The wind turbines and the BESS will be electrically connected to each other via inter-array cable circuits and a substation, which would house transformer(s) and associated switchgear. In addition to grid connection infrastructure, a substation compound containing electrical infrastructure, control building, welfare facilities and a communications mast will be located on the Site. The substation will act as the central point of connection for a network of buried electrical and communication cables, which will predominantly follow the alignment of the proposed access tracks, linking the substation to each turbine location. The proposed location of the substation compound is shown on **Figure 2.1: Site Layout**.

The Proposed Development will connect to the national electricity network. The grid connection infrastructure will comprise an on-Site substation as noted above, owned by the Applicant and a grid connection route as described in **Section 2.4.4**.

2.4.4 GRID CONNECTION

It is anticipated that the Proposed Development will connect to Fourstones Substation, approximately 20 km south of the Site, via a new grid connection that may comprise either UGC or an OHL or a mixture of both, with the final solution to be selected following appraisal of environmental constraints, engineering feasibility and cost considerations. Both options remain viable at this stage, and the preferred route and technology will be refined through environmental surveys, consultation with stakeholders, and detailed design. The grid connection forms part of this Application and will be assessed in full within the EIA as part of the Proposed Development.

The grid connection routes currently under consideration are shown on **Figure 1.1: Site Location** as the Cable Corridor Options.

2.4.5 ACCESS

Access to the Site will primarily be facilitated via established road networks, with Site entrance points from the A696 which bisects the Site. It is expected that abnormal load vehicles transporting turbine components will access the Site via the Port of Blyth. From the A189 at Blyth the proposed route for Abnormal Indivisible Loads (AILs) would follow the A189 southbound, the A19 until Kenton Bay Interchange, onto the A696. This route has been identified as suitable for transporting materials and equipment, including general construction traffic, turbine components, and AILs such as turbine towers, turbine blades, and transformers.

The delivery of AILs will require engagement with relevant authorities (including the Police) to ensure transport is conducted safely and efficiently. As part of the iterative design process of the EIA, the access route for general construction traffic and AILs is under consideration and will be evaluated to identify the preferred option, with further high-level details to be provided in the ES.

Access from the public highway to the Site is still under consideration and has yet to be finalised. Indicative site entrance points are shown in **Figure 2.1: Site Layout**, and other relevant figures.

Where practicable, to reduce the requirement for new field entrances and new access track creation, existing access points and tracks within the Site will be utilised, although widening works may be required at these existing locations. New and widened access tracks will include Sustainable Drainage Systems (SuDS) features to ensure any potential impact on water quality, quantity and amenity are adequately mitigated.

2.4.6 TEMPORARY CONSTRUCTION COMPOUND

Temporary construction compounds (TCC) will be required during the construction phase, comprising an area of hardstanding to accommodate:

- site offices and welfare facilities (portacabins);
- parking for construction personnel;
- secure storage containers;
- turbine component laydown areas; and
- material storage and potential concrete batching facilities.

2.4.7 ANEMOMETRY MAST

A permanent anemometry mast will be required to monitor wind speed, direction and turbulence intensity throughout the operational life of the Proposed Development. The mast is expected to be of a height similar to the turbine hub height and may be supported by either guyed or free-standing structures. A light detection and ranging (LIDAR) system may also be deployed as needed to supplement data.

2.4.8 BORROW PITS

If suitable material is available, on-Site borrow pits may be utilised to source aggregate for the construction of on-Site access tracks, crane hard standing areas and potentially concrete batching. Sourcing aggregate from within the Site, where practicable, rather than an off-Site quarry, has the advantage of

reducing the number of Heavy Goods Vehicles (HGV) on the public road network.

Following construction, the borrow pits will be restored. The restoration will include the reuse of soil and turf materials from the construction works to restore the slopes to a stable profile and allow regeneration.

2.5 DEVELOPMENT PHASES

It is expected that the construction phase of the Proposed Development will take approximately 24 months, depending on the final design, weather conditions and on-Site constraints.

Construction activities will typically be undertaken in a phased sequence, beginning with establishment of the temporary construction compounds and upgrades to the Site access points from the A696, followed by construction of new and upgraded access tracks, formation of crane hardstandings, and excavation and pouring of turbine foundations. Track construction is likely to comprise a combination of cut and floating methods depending on local ground conditions, reflecting standard practice at comparable wind farm sites. Electrical cabling would then be installed (generally routed alongside tracks) followed by turbine delivery, erection and commissioning.

It is proposed that the operational phase of the Proposed Development will be for a period of up to 40 years, with this period including the construction and decommissioning phases.

A Decommissioning and Restoration Plan will be prepared and agreed in advance of decommissioning with the relevant authorities, including details of turbine removal, hardstanding and infrastructure reinstatement, and transportation methods. Decommissioning activities are anticipated to be similar in nature to construction, albeit over a shorter duration, and will include landscape restoration to reinstate disturbed areas as far as practicable.

3. ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

3.1 INTRODUCTION

The term 'Environmental Impact Assessment' ('EIA') describes a statutory process which assesses the environmental effects arising from the Proposed Development. The EIA process is a means of drawing together, in a systematic way, an assessment of a project's likely significant environmental effects. This helps to ensure that predicted effects and the scope for avoiding, preventing, reducing or, if possible, offsetting them are properly understood by the public, the Applicant and the authority granting consent (the 'determining authority') before it makes its decision.

3.2 REQUIREMENT FOR EIA

EIA is an iterative assessment process with the aim of avoiding or reducing the likely significant environmental effects resulting from the Proposed Development through the refinement of its design. These effects can occur during all phases of the Proposed Development from construction, through operation, and during decommissioning. Any likely significant effects assessed in the EIA will be mitigated using the 'mitigation hierarchy', namely to avoid, reduce, mitigate and finally offset.

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended) (hereafter referred to as 'EIA Regulations')[1] state that the SoS cannot make an order granting development consent for an EIA development unless an EIA has been carried out in respect of that application. A project is defined as an EIA development if it is: (a) listed in Schedule 1; or (b) listed in Schedule 2 and is likely to have significant effects on the environment by virtue of factors such as its nature, size or location.

The Proposed Development constitutes EIA development under Schedule 2 of the EIA Regulations. In particular, it falls within Schedule 2, paragraph 3(a) (Energy industry), which includes "*installations for the harnessing of wind power for energy production (wind farms) where:*

(i) the development involves the installation of more than two turbines; and/or

(ii) the hub height of any turbine or the height of any structure exceeds 15 metres."

[1] UK Government (2017) Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

As the Proposed Development exceeds these thresholds, it is a Schedule 2 development according to the EIA Regulations and therefore requires an Environmental Impact Assessment.

Schedule 3 then provides the selection criteria for assessing whether an EIA is required for a Schedule 2 development.

Following consideration of the characteristics of the Proposed Development, the location of the Site and the characteristics of the likely significant effects, as outlined within Schedule 3 of the EIA Regulations, the Applicant considers that the Proposed Development is EIA development in accordance with the EIA Regulations. As such, an EIA is required and an ES will need to be submitted with any application for consent under the Planning Act 2008[2] regime, and the ES will be submitted in accordance with the EIA Regulations.

3.3 APPROACH TO SCOPING

The purpose of EIA scoping is to consider and agree with consultees the scope and level of detail of the information that is to be provided within the ES, and to focus the EIA process on the likely significant environmental effects of a proposal.

Regulation 33 of the EIA Regulations provides for potential applicants to request the determining authority to confirm in writing the scope and level of detail of information that should be provided within the ES. This Report has been prepared in accordance with Regulation 33 (2) of the EIA Regulations. The scoping opinion is to be issued by PINS following discussion with the consultation bodies.

The Applicant recognises the value of the scoping approach, and the purpose of this Report is to ensure that relevant issues are identified, and to confirm that the assessment process described will meet legislative requirements, guidance and best practice. Therefore, this Report aims to identify potential environmental issues at an early stage by determining which elements of the Proposed Development are likely to result in likely significant effects on the receiving environment, and establishing the extent of baseline surveys and assessment required for the ES. Scoping has an important role to play in achieving proportionate and effective EIA.

This Report provides PINS and consultees with information that will allow them to agree on those impacts and receptors that are likely to experience a likely

[2] UK Government (2008) Planning Act 2008 (as amended)

significant effect as a result of the Proposed Development, as well as those that may not and therefore can be 'scoped out' of the EIA.

As such, this Report provides details of the technical areas which will be considered through the EIA process and are to be included within the ES to meet the information requirements as set out in Regulation 14 and Schedule 4 of the EIA Regulations, and that:

- Describes the existing site and its context;
- Establishes the format of the ES;
- Provides baseline information; and
- Describes key issues and the proposed assessment methodologies for various technical assessments to be covered in the ES.

3.4 APPROACH TO EIA

As described above, EIA is an iterative process aimed at identifying and assessing likely significant environmental effects arising as a result of a proposed development. It provides an opportunity to eliminate or avoid significant adverse environmental impacts by refining the design of the Proposed Development as it evolves and provides mitigation measures where appropriate. An iterative design approach is already being applied and will continue throughout the EIA process.

The EIA will address the construction phase of the Proposed Development, the operational phase, and the decommissioning phase. It will assess the likely significant effects of the Proposed Development by comparing existing baseline conditions with those anticipated if the Proposed Development is built, operated, and later decommissioned. The predicted impacts and likely significant effects will be considered in relation to environmental receptors or resources, such as biological, physical, population and human health factors. Any likely significant effects identified will be used to inform and refine the design of the Proposed Development.

Where likely significant adverse effects are identified, that cannot be avoided through embedded mitigation, suitable secondary mitigation measures to reduce, offset or compensate likely significant effects will be proposed. In addition, the EIA will be used to identify potential enhancement measures that could be applied to maximise beneficial environmental effects where appropriate.

Schedule 4 of the EIA Regulations specifies what the ES must include. This Report summarises how all the mandatory topics will be considered through the EIA process and reported on in the ES. This includes:

- Population and human health (**Chapter 15** and **Chapter 16**);
- Biodiversity, with particular attention to species and habitats protected under (any law that implemented) Directive 92/43/EEC and Directive 2009/147/EC (**Chapter 8** and **Chapter 9**);
- Land, soil, water, air and climate (**Chapter 10, Chapter 11, Chapter 14, Chapter 16**);
- Material assets, cultural heritage and the landscape (**Chapter 2, Chapter 7, Chapter 6**); and
- The interaction between the factors referred to in sub-paragraphs (**Chapter 16**).

3.4.1 ASSESSMENT METHODOLOGY

The assessment approach and methodology within each chapter identifies the study area to be assessed and explains why this area is appropriate. It also identifies the criteria for assessing sensitivity of receptors and magnitude of impact, and describing significance, whilst confirming what surveys have been carried out and when. The methodology will provide detailed information on any consultation undertaken.

Information relating to the existing environmental conditions will be collected. This may include one or all of the following:

- Desk based assessment;
- Information from consultees;
- Public records and other archive sources; and
- Site surveys.

Where site surveys are undertaken, the methods of data collection discussed and agreed with the relevant consultees will be provided. Individual data sources will be described in each chapter of the ES.

In order to assess the likely significant effects arising from the Proposed Development, the significance of such effects will be determined based on a maximum design scenario or "Rochdale Envelope" approach, in accordance with recent case law, best practice and PINS Advice Note Nine: Rochdale

Envelope[3], published in 2018. Significance is determined by assessing the impact resulting from the magnitude of change for a particular receptor, based on the sensitivity of that receptor and the magnitude of the impact. The assessment of likely significant effects examines the change to the baseline environment that could result from the construction, operation and decommissioning of the Proposed Development. To guide the assessment and determination of the significance of effects, they will be classified. The assessment of effects will combine professional judgement together with consideration of the following:

- The sensitivity of the resource or receptor under consideration;
- The magnitude of the potential impact in relation to the degree of change which occurs as a result of the Proposed Development;
- The type of effect (i.e., adverse, beneficial or neutral);
- The probability of the impact occurring (i.e., certain, likely or unlikely);
- Whether the impact is temporary, permanent and/or reversible; and
- Whether the impact is direct, indirect, secondary, cumulative, or synergistic.

Effects predicted to be of major or moderate significance are generally considered to be 'significant' in EIA practice. The ES will generally follow these principles in relation to the identification of significant effects; however, some technical assessments may adopt a variation to this process. The assessment criteria used to determine the significance of effects will be explicit in each technical assessment chapter within the ES.

Each individual technical area will have a specific assessment methodology and will be described in the ES. The assessment methodologies used within the ES will be in line with the relevant standards and guidance provided within each topic chapter.

3.4.2 APPROACH TO MITIGATION

Paragraph 7 of Schedule 4 of the EIA Regulations notes that the ES should include: *'A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for*

[3] The Planning Inspectorate (2018). Nationally Significant Infrastructure Projects – Advice Note Nine: Rochdale Envelope [Online]. Available at https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-nine-rochdale-envelope/nationally-significant-infrastructure-projects-advice-note-nine-rochdale-envelope

example the preparation of a post-project analysis). That description should explain the extent to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases.'

These measures are termed mitigation. A hierarchical approach is taken to the mitigation of environmental effects during the EIA process. This approach will be adopted as part of the EIA process for the Proposed Development. Where the EIA identifies likely significant environmental effects, mitigation measures will be proposed to avoid, prevent, reduce, or offset those effects.

In the context of the mitigation hierarchy (as shown below in **Diagram 3.1: Mitigation Hierarchy**), primary or embedded mitigation refers to measures that are inherently built into the project design from the outset or design evolution and/or mitigation which is imposed through current regulations and/or standard best practice and typically align with the early stages of the hierarchy like avoidance and minimisation. Such embedded mitigation measures will likely include micro-siting (up to 50 m limit of deviation is proposed), amendment to turbine dimensions, relocation of access tracks and other infrastructure through the design process.



DIAGRAM 3.1 MITIGATION HIERARCHY[4]

Secondary mitigation refers to measures that require further activity to typically reduce or offset the impacts of a development. Secondary mitigation measures are typically secured through the Requirements of the DCO, for example by specifying limits on external lighting or requiring the approval of a Lighting Management Plan, which then form part of the statutory control framework for the Proposed Development.

In addition, enhancement measures may be incorporated into the design of the Proposed Development to deliver positive effects such as environmental and social benefits rather than as a direct result of mitigation for adverse likely

[4] IEMA (2024) Implementing the Mitigation Hierarchy from Concept to Construction [Online] Available at: https://www.iema.net/media/oone2qce/iema-mitigation-in-eia-guidance-final.pdf

significant effects. Other significant positive effects could also be a result of directly mitigating impacts from the Proposed Development.

The ES will include a description of the mitigation measures envisaged mainly to prevent, reduce and, where possible, remedy any likely significant adverse effects. Any beneficial significant effects arising from enhancement measures will also be identified. Where practical, mitigation measures will be set out as commitments in the ES and secured through Requirements of the DCO, which will ensure they are implemented. Where the likely effects of the impact are significant and adverse, and there is uncertainty in the mitigation proposed, monitoring may be proposed to ensure that the mitigation is both required and effective. It will allow for adaptation of the mitigation measures to ensure that they are fit for purpose and will be proportionate to the level of significance experienced.

3.4.3 RESIDUAL EFFECTS

Taking into account the suggested embedded and secondary mitigation and enhancement measures, the predicted likely significant effects will be reassessed to determine whether any significant residual effects remain.

3.4.4 CUMULATIVE EFFECTS ASSESSMENT

In accordance with the EIA Regulations, the EIA will also consider likely significant 'cumulative effects'. Cumulative effects occur when the impacts of a proposed development are worsened or exacerbated by the presence of other, reasonably foreseeable projects, whether already consented, or currently in the planning system and synergistic effects occurring when a single receptor is affected by multiple types of impacts.

For the cumulative assessment, two types of effect will be considered:

- Intra-project cumulative effects: The combined effect of individual impacts from the same development (e.g., noise, airborne dust or traffic) on a single receptor; and
- Inter-project cumulative effects: The combined effect from the impact of several developments that may on an individual basis be insignificant but cumulatively may be significant.

In line with good practice, the methodology to be adopted for assessing the cumulative effects of wind energy developments will be in accordance with advice from PINS. The Planning Inspectorate's Advice Note on cumulative

effects assessment for Nationally Significant Infrastructure Projects[5] provides a structured and transparent approach to assessing cumulative impacts, which can help ensure that environmental considerations are thoroughly addressed.

The extent of any cumulative assessment relative to each technical assessment will be agreed during the consultation process and can include both existing and proposed wind farm developments, as well as other forms of development.

At the time of writing, known operational and consented wind turbine/farm schemes within 45 km of the Proposed Development have been identified (single wind turbine schemes within 5 km) and are shown on **Figure 3.1 Wind Farm developments within the 45 km Study Area**:

The following operational wind farms will be considered as part of the baseline assessment:

- Ray Wind Farm;
- Green Rigg Wind Farm;
- Fallowlees Wind Farm;
- Kirkheaton Wind Farm;
- Wingates;
- Blyth Harbour;
- Blyth Offshore;
- Wandylaw Wind Farm;
- Middlemoor Wind Farm;
- Holmside;
- Boundary Lane;
- Kiln Pit Hill;
- Cramlington MSD;
- Lynemouth Wind Farm;
- North Steads;
- Greencroft Estate;
- Sisters Wind Farm;

[5] Planning Inspectorate (2024) *Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment*. GOV.UK. Available at: https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-cumulative-effects-assessment

The following consented wind farm will be included within the cumulative assessment:

- Fallowlees Wind Farm Extension

It should be noted that developments in screening or scoping phases are not generally considered as part of the cumulative assessment and it is currently proposed that these developments will not be referred to in the ES.

As the cumulative baseline is constantly evolving and the relevant cumulative schemes will vary by topic, the schedule of cumulative sites to be referred to in the assessment will be finalised following consultation with relevant consultees, in particular Northumberland County Council (NCC) and PINS. As part of this Scoping consultation, confirmation is also sought from PINS and relevant consultees on the developments to be considered in the cumulative assessment.

3.5 STRUCTURE AND CONTENT OF THE ES

Regulation (14) (2) of the EIA Regulations specify that:

'An environmental statement is a statement which includes at least —

- *(a) description of the proposed development comprising information on the site, design, size and other relevant features of the development;*
- *(b) a description of the likely significant effects of the proposed development on the*
- *environment;*
- *(c) a description of any features of the proposed development, or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;*
- *(d) a description of the reasonable alternatives studied by the applicant or appellant, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the significant effects of the development on the environment;*
- *(e) a non-technical summary (NTS) of the information referred to in sub-paragraphs (a) to (d); and*
- *(f) any additional information specified in Schedule 4 relevant to the specific characteristics of the particular development or type of development and to the environmental features likely to be significantly affected.'*

The Application will be accompanied by an ES and comply with the EIA Regulations. The ES will follow the specifications detailed within Schedule 4 of the EIA Regulations. The ES will consist of four volumes as follows:

- Volume 1 – Non-Technical Summary;
- Volume 2 – Main Text;
- Volume 3a – Figures;
- Volume 3b – Landscape and Visual Assessment Visualisations; and
- Volume 4 – Technical Appendices.

The technical chapters of the ES will present baseline conditions, details and methodologies of the assessments undertaken, including any cumulative effects, required mitigation and residual effects, and will be accompanied and supported by a suite of standalone planning documents, specifically those required in the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009[6], including, cover letter, Application form, application guide, document tracker, Section 55 Checklist, Glossary of Terms, Draft DCO and Explanatory Memorandum, Planning Statement, required drawings, funding and compulsory acquisition Statements (where relevant), Pre-Application Consultation (PAC) Report, Green Infrastructure Statement, updated programme, Design and Access Statement (DAS), Habitat Management Plan, Outline Construction Environmental Management Plan (OCEMP) and Socio-Economic Statement (SES) and any relevant additional statements agreed with the LPA. The final list of documents is subject to change as the project progresses.

The proposed technical scope of the EIA will be established based upon those topics and the requirements in Schedule 4 of the EIA Regulations within which the Applicant considers there to be a likelihood of significant environmental effects. It is proposed that Volume 2 (Main Text) of the ES will include the following technical chapters:

- Introduction;
- The Proposed Development;
- EIA Process;
- Policy and Legislative Context;
- Design Iteration and Layout;
- Landscape and Visual;

[6] UK Government (2009). Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations

- Cultural Heritage and Archaeology;
- Ornithology;
- Ecology and Nature Conservation;
- Geology and Peat;
- Water Resources and Flood Risk;
- Access, Traffic and Transport;
- Noise;
- Climate Change and Greenhouse Gas Emissions;
- Socio-Economics, Tourism and Recreation;
- Other Issues (including Telecommunications, Aviation, Shadow Flicker, Human Health, Major Accidents and Disasters and Intra-project Cumulative Effects);
- Schedule of Mitigation; and
- Summary

3.6 CONSULTATION AND SCOPING QUESTIONS

Consultation with stakeholders is a key part of the EIA process and will be ongoing throughout all stages of the EIA. Consultation responses will be requested from both statutory and non-statutory consultees as part of this Report and throughout the EIA process.

Key questions for all consultees are:

- Q3.1 - Do consultees agree with the approach to the EIA and the general strategy for assessing the effects?
- Q3.2 – Do consultees agree with the approach to the assessment of cumulative effects?
- Q3.3 - Do consultees agree that developments that are in the scoping phase do not need to be considered as part of the cumulative assessment and will not be referred to in the ES?
- Q3.4 - Can the consultees provide any further information on developments that they think should be referred to in the cumulative assessment?

4. POLICY AND LEGISLATIVE CONTEXT

4.1 INTRODUCTION

An overview of national, regional and local planning and energy policy and legislation relevant to informing the scope of the EIA for the Proposed Development, is provided within this chapter. Further information on planning policy, where it is specific to a particular technical aspect, is provided within the chapters themselves. A review of relevant legislation and policy will be included within the ES.

Planning and energy policy and legislation matters will also be considered in a standalone Planning Statement, which will accompany the application for consent. This will provide a detailed appraisal of the Proposed Development against the relevant planning and energy legislation and policies and other relevant considerations, drawing upon the conclusions of the ES. The Planning Statement is separate from the ES and will accompany the Application.

The following paragraphs set out the statutory framework for the Application and the key policy and guidance documents that will inform the design and assessment of the Proposed Development, including any relevant policy updates that may occur prior to submission.

4.2 INTERNATIONAL CONTEXT

The framework of international agreements, legally binding targets to reduce greenhouse gas emissions and climate change global advisory reports are the foundation upon which national energy policy and emissions reduction law is based. This underpins what can be termed the 'need case' for renewable energy from which the Proposed Development can draw a high level of support.

The following documents are relevant to the international context and will be discussed within the ES and supporting Planning Statement:

- The Paris Agreement[7]: this marks the first ever global climate deal. The purpose of domestic renewable energy and greenhouse gas ('GHG') reduction targets is to meet the UK's commitment in the Paris Agreement;

[7] UNFCCC (2015) The Paris Agreement. Available Online at: https://unfccc.int/process-and-meetings/the-paris-agreement

- United Nations - Intergovernmental Panel on Climate Change Special Report on Warming (2018)[8]: the Panels 2018 Report was a key piece of evidence for the UK Climate Change Committee's (CCC) recommendation to the UK Government for a 2050 net zero greenhouse gas emission target; and
- UN Emissions Gap Report (2025)[9]: this report presents an up to date position on how UN countries are preforming in terms of emissions reduction targets against the Paris Agreement commitments. The recent report highlights that despite the increasing likelihood of higher and longer temperature overshoot, pursuing efforts to limit global warming to 1.5°C remains as critical and relevant as ever.

4.3 UK LEGISLATIVE AND POLICY CONTEXT

4.3.1 PLANNING ACT 2008

The Proposed Development is a NSIP under Section 14(1)(a) and Section 15(2) of the Planning Act 2008 ('2008 Act') as an onshore generating station in England with a capacity of more than 100 MW.

The Applicant is required to obtain a DCO before it can lawfully construct or operate the Proposed Development. The 2008 Act provides that the SoS is responsible for determining the application for development consent.

Section 103 (1) of the 2008 Act confirms that the SoS has the function of deciding to grant a DCO:

"The Secretary of State has the function of deciding an application for an order granting development consent"

Section 104 of the 2008 Act provides the basis for deciding a DCO application if relevant National Policy Statements ('NPSs') apply. Section 104 (2) provides:

"In deciding the application the [Secretary of State] must have regard to—

(a) any national policy statement which has effect in relation to development of the description to which the application relates (a "relevant national policy statement");

(aa) the appropriate marine policy documents (if any), determined in accordance with section 59 of the Marine and Coastal Access Act 2009;

[8] IPCC (2018) Special Report on Warming. Available online at: https://www.ipcc.ch/sr15/
[9] UN (2025) Emissions Gap Report 2025: Off Target. Available Online at: https://www.unep.org/resources/emissions-gap-report-2025

(b) any local impact report (within the meaning given by section 60(3)) submitted to the Secretary of State before the deadline specified in a notice under section 60(2);

(c) any matters prescribed in relation to development of the description to which the application relates, and

(d) any other matters which the Secretary of State thinks are both important and relevant to the Secretary of State's decision."

The SoS must decide if the Application is in accordance with any relevant NPS, except to the extent that one or more of subsections (4) to (8) of Section 104 apply.

The relevant NPSs are discussed below in **Section 4.4.1.**

4.3.2 THE INFRASTRUCTURE PLANNING (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2017

The EIA Regulations provide the legal framework for the Proposed Development in terms of the undertaking of the necessary environmental impact assessments.

The Proposed Development, as a generating station, falls under Schedule 2, Category 3 Energy part *'(i) installations for the harnessing of wind power for energy production (wind farms)'* of the EIA Regulations. A Schedule 2 development constitutes EIA development if it is likely to have significant effects on the environment by virtue of its nature, size or location. This request for a scoping opinion is submitted in accordance with Regulation 10 (1) Application for a scoping opinion.

4.3.3 THE CONSERVATION OF HABITATS AND SPECIES REGULATIONS 2017 (AS AMENDED)

The Conservation (Natural Habitats, & c.) Regulations 1994 as amended (the 'Habitats Regulations')[10] require that all competent authorities must consider whether any plan or project could affect a European site before it can be authorised or carried out. This includes considering whether it will have a 'likely significant effect' on a European site, and if so, they must carry out an 'appropriate assessment' (AA). This process is known as Habitats Regulations Appraisal (HRA).

European sites have been identified within proximity to the Proposed Development and the potential for connectivity with these sites will be

[10] His Majesty's Office (HMSO) (1994) The Conservation (Natural Habitats, &c.) Regulations (as amended)

considered. Any direct or indirect impacts to their features will be carefully considered as part of the EIA process. Avoiding impacts to these sites will be a key consideration in the design and layout of the Proposed Development. Sufficient information to inform an AA if required will be submitted with the Application.

4.3.4 PLANNING AND INFRASTRUCTURE ACT 2025

The Planning and Infrastructure Act 2025 ('2025 Act')[11] received Royal Assent on 18th December 2025. The 2025 Act makes some amendments to the 2008 Act in respect of applications for development consent, namely section 5 which will remove the requirement for statutory pre-application consultation under sections 42, 47 and 48 of the 2008 Act. Whilst the 2025 Act has been enacted, section 5 is not yet in force until the SoS makes the necessary secondary legislation. Notwithstanding, the Applicant is committed to undertaking formal consultation with the local community and relevant stakeholders.

4.3.5 THE INFRASTRUCTURE PLANNING (ONSHORE WIND AND SOLAR GENERATION) ORDER 2025

The Infrastructure Planning (Onshore Wind and Solar Generation) Order 2025[12] came into force on 31st December 2025. The Order reintroduces large scale onshore wind proposals over 100 MW to the NSIP regime.

4.4 NATIONAL PLANNING POLICY AND GUIDANCE

4.4.1 NATIONAL POLICY STATEMENTS

As noted, NPSs are the principal policy documents relating to the determination of NSIPs. Under Section 104 of the 2008 Act, the SoS must decide a DCO application in accordance with any relevant NPS (meaning any NPS which has effect in relation to the development), any Local Impact Report, matters prescribed in relation to the Proposed Development, and any other matters regarded by the SoS as 'important and relevant'.

There are three NPSs which are considered to be a 'relevant NPS' under Section 104 of the Act:

[11] UK Government (2025) Planning and Infrastructure Act 2025
[12] UK Government (HMSO) (2025) The Infrastructure Planning (Onshore Wind and Solar Generation) Order 2025

- Overarching National Policy Statement for Energy (EN-1)[13]: an overarching policy document applicable as the overarching energy policy statement in England (and Wales);
- National Policy Statement for Renewable Energy Infrastructure (EN-3)[14]: includes a specific section on wind energy generation; and
- National Policy Statement for Electricity Networks Infrastructure (EN-5)[15]: applies given the presence of electrical network infrastructure and underground cabling as associated development.

4.4.1.1 OVERARCHING NATIONAL POLICY STATEMENT FOR ENERGY (EN-1)

NPS EN-1 was updated in December 2025 and came into force on 6th January 2026. It sets out the national policy for the development of energy infrastructure and is intended to be combined with relevant technology-specific NPSs to form the primary basis for decisions by the SoS. It sets out the background context to the NPSs, including the scope of EN-1 and geographical coverage. In summary, NPS EN-1:

- Sets out the policy context for the development of nationally significant energy infrastructure;
- Explains the urgent need for significant amounts of large-scale energy infrastructure to meet the government's energy objectives – especially the need for new nationally significant low carbon electricity generating infrastructure;
- Sets out the general policies for the examination and determination of applications for development consent for energy infrastructure; and
- Outlines generic impacts which may arise from the development of all types of energy infrastructure covered by the technology specific energy NPSs.

[13] UK Government (2026) Overarching National Policy Statement for Energy EN-1. Available online at: https://assets.publishing.service.gov.uk/media/695d1015f41883f4e50ed9ab/overarching-national-policy-statement-for-energy-en-1-web-accessible.pdf

[14] UK Government (2026) National Policy Statement for Renewable Energy Infrastructure EN-3. Available online at: https://assets.publishing.service.gov.uk/media/695d1368b5c46330350ed9a2/national-policy-statement-for-renewable-energy-infrastructure-en-3-web-accessible.pdf

[15] UK Government (2026) National Policy Statement for Electricity Networks Infrastructure EN-5. Available online at: https://assets.publishing.service.gov.uk/media/64252f852fa848000cec0f53/NPS_EN-5.pdf

Chapter 3 of NPS EN-1 highlights the important role of wind generation in the energy mix. It is, along with solar, the lowest cost way of generating electricity, *"helping reduce costs and providing a clean and secure source of electricity supply (as these sources are not reliant on fuel for generation)"* (Paragraph 3.3.23). The analysis shows that *"a secure, reliable, affordable, net zero consistent system in 2050 is likely to be composed predominantly of wind and solar"* (paragraph 3.3.23)

The need for electricity generating capacity is set out at paragraphs 3.3.57 and 3.3.58. It notes that:

"Government has committed to reduce GHG emissions by 78 per cent by 2035 under Carbon Budget 6. The 2030 Clean Power Action Plan requires that 95% of Great Britain's generation will come from clean sources by 2030.

Given the urgent need for new electricity infrastructure and the time it takes for electricity NSIPs to move from design conception to operation, there is an urgent need for new (and particularly low carbon) electricity NSIPs to be brought forward as soon as possible, given the crucial role of electricity as the UK decarbonises its economy".

NPS EN-1 notes that onshore wind, amongst other technologies, is urgently required for the Clean Power 2030 Mission, energy security, and Net Zero: "*Government has concluded that there is a critical national priority (CNP) for the provision of nationally significant low carbon infrastructure"* (paragraph 3.3.62) For the purpose of this policy, "*low carbon infrastructure... means, for electricity generation, all onshore and offshore generation that does not involve fossil fuel combustion"* (paragraph 4.2.17).

CNP provisions are also extended to a generation assets electricity grid connection, *"For electricity grid infrastructure, all power lines in scope of EN-5 including network reinforcement and upgrade works, and associated infrastructure such as substations."* (Paragraph 4.2.17).

In relation to the need case, paragraphs 3.2.8 – 3.2.10 are also important:

"The Secretary of State should assess all applications for development consent for the types of infrastructure covered by this NPS on the basis that the government has demonstrated that there is a need for those types of infrastructure which is urgent…"

"In addition, the Secretary of State has determined that substantial weight should be given to this need when considering applications for development consent under the Planning Act 2008.

The Secretary of State is not required to consider separately the specific contribution of any individual project to satisfying the need established in this NPS".

In relation to CNP projects, NPS EN-1 states at paragraph 3.3.63 (our emphasis added):

"the urgent need for CNP infrastructure to achieving our energy objectives, together with the national security, economic, commercial, and net zero benefits, means that it is likely the ***need case will outweigh any other residual impacts not capable of being addressed by application of the mitigation hierarchy,*** *in all but the most exceptional circumstances. Government strongly supports the delivery of CNP infrastructure and it should be progressed as quickly as possible."* (Emphasis added)

This presents a very important position and one which offers significant support in favour of new CNP projects.

General policies and considerations for the examination and determination of applications for development consent for energy infrastructure are noted as follows:

- Weighing impacts and benefits: the NPS sets out what the SoS should take into account when considering proposed developments – in short – "*its potential benefits including its contribution to meeting the need for the Clean Power 2030 Mission and net zero, energy infrastructure, job creation, reduction of geographical disparities, environmental enhancements, and any long-term or wider benefits*" (paragraph 4.1.5) and "*the environmental, social and economic benefits and adverse impacts, at national, regional and local levels*" (paragraph 4.1.6).
- Land Rights (paragraphs 4.1.8 - 4.1.9): as they relate to any necessary and appropriate compulsory purchase.
- Other Documents (paragraphs 4.1.10 - 4.1.16): including National Planning Policy Framework (NPPF), Development Plan documents, other documents in the Local Development Framework, spatial plans such as the Strategic Spatial Energy Plan, upon endorsement by relevant governments.
- Development consent (paragraphs 4.1.17 - 4.1.19): "*The Secretary of State should only impose requirements in relation to a development consent that are necessary, relevant to planning, relevant to the development to be consented, enforceable, precise, and reasonable in all other respects*" (paragraph 4.1.17).

- Early engagement (paragraphs 4.1.20 - 4.1.21): both before and at the formal pre application stage with key stakeholders.
- Financial and technical viability (paragraphs 4.1.22 - 4.1.23) *"Where the Secretary of State considers that the financial viability and technical feasibility of the proposal has been properly assessed by the applicant, it is unlikely to be of relevance in Secretary of State decision making"*

In relation to CNP infrastructure, NPS EN-1 states at paragraphs 4.2.19-4.2.20 that *"the overarching need case for each type of energy infrastructure and the substantial weight which should be given to this need in assessing applications... is the starting point for all assessments of energy infrastructure applications."*

*"The CNP policy **does not** create an additional or cumulative need case or weighting to that which is already outlined for each type of energy infrastructure. The policy applies following the normal consideration of the need case, the impacts of the project, and the application of the mitigation hierarchy. As such, it is relevant during Secretary of State decision making and specifically in reference to any residual impacts that have been identified."* (Emphasis added)

NPS EN-1 sets out topic-specific 'Assessment Principles' at Chapter 4 and 'Generic Impacts', Chapter 5, which set out how energy DCO applications should be prepared. The Assessment Principles of most relevance to the Proposed Development include Environmental Effects Considered Through EIA; Health; Environmental and Biodiversity Net Gain ('BNG'); Criteria For Good Design For Energy Infrastructure; Network Connection; and Pollution Control and Other Environmental Regulatory Regimes. (These are set out at paragraphs 4.3 – 4.12)

Generic Impacts which should be considered in the preparation of applications and of relevance to the Proposed Development include: air quality and emissions; greenhouse gas emissions; biodiversity and geological conservation; civil and military aviation and defence interests; dust, odour, artificial light; flood risk; historic environment; landscape and visual; land use; noise and vibration; socio economic impacts; traffic and transport; and water quality. (These are set out at Paragraphs 5.2 – 5.16)

NPS EN-1 sets out specific policy requirements for each topic which will be considered in the preparation of the EIA. Each of these will also be examined in the Planning Statement and Policy Compliance Document submitted with the DCO.

4.4.1.2 NPS FOR RENEWABLE ENERGY INFRASTRUCTURE (EN-3)

NPS EN-3 was updated in December 2025 and came into force on 6th January 2026. The opening paragraphs of NPS EN-3 reiterate that there is an urgent need for new electricity generating capacity to meet the UK's energy objectives, which are essential elements of the transition to Clean Power 2030, net zero and meeting the statutory requirements of the sixth carbon budget.

This is set against a backdrop that demand for electricity is likely to increase significantly over the coming years and could more than double by 2050, which could require a fourfold increase in low carbon electricity generation, with most of this likely to come from renewables.

NPS EN-3, taken together with the NPS EN-1, provides the primary policy for decisions by the SoS on applications for development consent for nationally significant renewable energy infrastructure.

In relation to 'Factors influencing Site Selection and Design', advice is provided in relation to national designations as follows:

"When considering applications for CNP Infrastructure in sites with nationally recognised designations …, the Secretary of State will take as the starting point that the relevant tests in Sections 5.4 [Biodiversity and Geological Conservation] *and 5.10* [Landscape and Visual] *of EN-1 have been met, and any significant adverse effects on the qualities for which the area has been designated are clearly outweighed by the urgent need for this type of infrastructure.* (paragraph 2.3.6)

In considering the impact on the historic environment as set out in Section 5.9 [Historic Environment] *of EN-1 and whether the Secretary of State is satisfied that the substantial public benefits would outweigh any loss or harm to the significance of a designated heritage asset, the Secretary of State should take into account the positive role that large-scale renewable projects play in the mitigation of climate change, the delivery of energy security, and the urgency of meeting the Clean Power 2030 Mission and net zero target."* (Paragraph 2.3.8)

Section 2.12 sets out policy specific to onshore wind development, directing the approach to assessment and consideration of impacts additional to those detailed in NPS EN-1.

Section 2.12 covers advice on the following matters: Applicant Assessment; Mitigations; and Secretary of State decision making, and within each, sets out advice for each of the relevant environmental topics.

Paragraph 2.12.6 states *"Onshore wind farm proposals are likely to involve turbines from between 4.5MW of generating capacity up to 7.5 MW individually. The total number of turbines comprising a wind farm of 100 MW capacity or greater covered by this NPS is therefore likely to be thirteen or more. This is expected to change over time as the technology continues to evolve to become more efficient."*

The key policy requirements of NPS EN-3 will be considered in the preparation of the EIA and will also be examined in the Planning Statement and Policy Compliance Document submitted with the DCO.

4.4.1.3 NPS FOR ELECTRICITY NETWORKS INFRASTRUCTURE (EN-5)

NPS EN-5 is a technology-specific NPS, focusing on infrastructure for electricity networks. It covers transmission systems (above or underground) and associated infrastructure such as substations and converter stations. It is therefore to be considered alongside NPS EN-1 as the primary policy basis for decisions on electricity network infrastructure DCO applications. It is considered to be a relevant NPS for the Proposed Development due to the inclusion of electricity network infrastructure (grid connection cables and an on-Site substation) within the project.

NPS EN-5 sets out assessment principles, in addition to those detailed in NPS EN-1, specific to electricity network infrastructure, with a predominant focus on overhead lines.

NPS EN-5 has additional policy on: Factors Influencing Site Selection and Design; Biodiversity and Geological Conservation; Landscape and Visual; Noise and Vibration; Electric and Magnetic Fields; and Sulphur Hexafluoride.

As identified above under NPS EN-1, electricity networks infrastructure including infrastructure associated with connecting onshore electricity generation stations to the national grid, are considered to be CNP infrastructure. The introductory text states at paragraph 1.1.4, that *"As identified in EN-3, offshore wind development, and the supporting onshore and offshore transmission infrastructure and related network reinforcements, are viewed by the government as being a critical national priority (CNP) and should be progressed as quickly as possible".*

The glossary to NPS EN-5 states that "CNP Infrastructure is defined as nationally significant new offshore wind development and supporting onshore and offshore network infrastructure and related network reinforcements. (Page 36)

NPS EN-5 provides advice in a similar manner to EN-3 in relation to the applicant's assessment, mitigation and SoS decision making.

The key policy requirements of NPS EN-5 will be examined in the Planning Statement and Policy Compliance Document submitted with the DCO.

4.4.1.4 NATIONAL PLANNING POLICY FRAMEWORK

The NPPF[16] (2024) sets out the Government's planning policies for England and how they should be applied.

Paragraph 5 states that the NPPF does not contain specific policies for NSIPs, however also notes that the SoS may consider (parts of) the NPPF, to be a relevant and important matter for their consideration of this NSIP.

Some of the key policy provisions of the NPPF relevant to the Proposed Development are set out in the following paragraphs.

Sustainable development, described in paragraphs 7 and 8 of the NPPF, has three main objectives (social, economic, and environmental) to meet the needs of today's society without compromising the ability of future generations to do the same. Sustainable development is to be positively promoted in the planning framework through 'the presumption in favour of sustainable development' set out in paragraphs 10 and 11.

Section 8 of the NPPF seeks to promote healthy and safe communities. Paragraph 105 states that *"planning policies and decisions should protect and enhance public rights of way and access, including taking opportunities to provide better facilities for users"*.

Paragraph 124 explains that decisions should be made in the interest of promoting the most effective use of land, while seeking to safeguard and improve the environment and ensure safe and healthy living conditions.

In order to tackle climate change, paragraph 161 states that the planning system should support the transition to net zero by 2050 by helping to shape places that contribute to radical reductions in greenhouse gas emissions and supporting renewable and low carbon energy and associated infrastructure.

Paragraph 165 relates to the preparation of plans and notes that to help increase the use and supply of renewable and low carbon energy and heat that these should *"a) provide a positive strategy for energy from these sources,*

[16] UK Government (2024) National Planning Policy Framework. Available online at: https://assets.publishing.service.gov.uk/media/67aafe8f3b41f783cca46251/NPPF_December_2024.pdf

that maximises the potential for suitable development, and their future re-powering and life extension, while ensuring that adverse impacts are addressed appropriately (including cumulative landscape and visual impacts); b) consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development…".

Paragraph 168 states that local planning authorities faced with applications for renewable and low carbon energy developments should *"not require applicants to demonstrate the need for the renewable or low carbon energy, and give significant weight to the benefits associated with renewable and low carbon energy generation and the proposal's contribution to a net zero future".*

Paragraph 187 states that "*planning policies and decisions should contribute and enhance the natural and local environment by protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils; recognising the intrinsic character and beauty of the countryside"*; and "*minimising impacts on and providing net gains for biodiversity*". The UK Government confirmed on 15 April 2026[17] that BNG for Nationally Significant Infrastructure Projects (NSIPs) will be mandatory for all projects and this requirement will come into effect for all onshore NSIP applications submitted on or after 2 November 2026. New and existing development should be prevented from contributing to, or being put at unacceptable risk from, water or noise pollution or land instability.

Paragraph 193 sets out principles local planning authorities should apply when determining planning applications including *"if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused".*

Additionally, paragraph 193(b) states that *"development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific*

[17] UK Government (2026) Biodiversity Net Gain for Nationally Significant Projects. Available online at: https://www.gov.uk/government/consultations/biodiversity-net-gain-for-nationally-significant-infrastructure-projects/outcome/summary-of-responses-and-government-response

interest, and any broader impacts on the national network of Sites of Special Scientific Interest."

Paragraph 193(c) requires that development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons.

Paragraphs 207 to 221 set out how impacts to heritage assets should be considered in decision-making, such that harm to assets should be clearly justified and only found acceptable where public benefits demonstrably outweigh that harm.

NPPF will be considered in the preparation of the EIA and will also be examined in the Planning Statement and Policy Compliance Document submitted with the DCO.

4.4.2 DRAFT NATIONAL PLANNING POLICY FRAMEWORK

The UK Government published a draft revised NPPF[18] and other changes to the planning system in December 2025, which were subject to consultation until 10th March 2026.

The changes include the proposed introduction of National Development Management Policies, and consideration has been given to giving these statutory status; however, this is currently not the Government's proposed approach.

The draft NPPF states at paragraph 3 that the *"Planning law requires that applications for planning permission be determined in accordance with the development plan, unless material considerations indicate otherwise. The national decision-making policies in this Framework are a material consideration in making these decisions and should be read alongside the policies in the development plan."*

Chapters 2 and 3 of the draft NPPF set out general procedural policies for plan-making and decision-making, respectively. The subsequent chapters contain policies on thematic issues. It notes that the national decision-making policies should be read as a whole, including relevant footnotes and annexes. Some polices indicate how much weight the government would expect a particular

[18] UK Government (2026) Draft National Planning Policy Framework. Available online at: https://www.gov.uk/government/consultations/national-planning-policy-framework-proposed-reforms-and-other-changes-to-the-planning-system

consideration to be given, including cases where it is appropriate to give substantial weight to certain benefits.

The Plan sets out three objectives (at paragraph 16) in pursuit of securing Sustainable Development – these include an Economic Objective, a Social Objective, and an Environmental Objective.

The decision making polices in chapter 2 set out policy relating to the preparation of development proposals, information requirements; policy for local authorities in determining development proposals, and policy on development viability; planning conditions and obligations and relationship with other regulatory regimes and unauthorised development and enforcement.

The key polices of relevance to the Proposed Development will be as follows:

- Policy S4: Presumption in favour of sustainable development; and
- Policy W3: Renewable and low carbon energy development and electricity network infrastructure.

Other policies of draft NPPF will be relevant and will be considered as appropriate in the preparation of the ES and assessed in the Planning Statement and Policy Compliance Document submitted with the DCO.

The timescale for the adoption of the revised NPPF is currently unknown, but expected in summer 2026.

4.4.3 PLANNING PRACTICE GUIDANCE (PPG)

The Planning Practice Guidance supports the policies set out within the NPPF (2024) discussed above. The guidance covers a range of topics including climate change, renewable and low carbon energy, biodiversity net gain, environmental impact assessment, flood risk, historic environment, light pollution, minerals, natural environment, noise, and transport.

The relevant PPGs will be considered throughout the preparation of the EIA as appropriate.

4.5 ENERGY AND CLIMATE LEGISLATION AND GUIDANCE

The following UK legislation and policy related documents are relevant to the Proposed Development and set out in legislation and policy how the UK Governments targets in relation to net zero and reducing emissions can be achieved:

- The Climate Change Act 2008[19];
- The Energy Act 2023[20];
- The UK Energy White Paper (December 2020)[21];
- The British Energy Security Strategy (April 2022)[22];
- Powering Up Britain: Energy Security Plan (2023)[23];
- The Clean Power 2030 Action Plan (2024)[24];
- The Onshore Wind Taskforce Strategy (2025)[25];
- The Carbon Budget And Growth Delivery Plan (2025)[26]; and
- The UK's Climate Change Committee (CCC) Reports. These include Progress Reports[27] in terms of reducing emissions and reports on Carbon Budgets[28] both of which are published annually.

The Planning Statement will set out in detail the needs case for the Proposed Development in terms of its contributions to the targets set out in legislation and policy.

4.6 LOCAL PLANNING POLICY AND GUIDANCE

The relevant Local Plans for the area do not carry the same weight under the Planning Act 2008 in respect of decision making on NSIPs, as they do with determining planning applications under the Town Country Planning Act

[19] UK Government (2008) Climate Change Act
[20] UK Government (2023) Energy Act 2023
[21] UK Government (2020) Energy White Paper: Powering our net zero future. Available online at: https://www.gov.uk/government/publications/energy-white-paper-powering-our-net-zero-future
[22] UK Government (2022) British energy security strategy. Available online at: https://www.gov.uk/government/publications/british-energy-security-strategy
[23] UK Government (2023) Powering Up Britain: Energy Security Plan. Available online at: https://www.gov.uk/government/publications/powering-up-britain/powering-up-britain-energy-security-plan
[24] UK Government (2024) Clean Power 2030 Action Plan. Available online at: https://www.gov.uk/government/publications/clean-power-2030-action-plan
[25] Department for Energy Security & Net Zero (DESNZ) (2025) Onshore Wind Taskforce Strategy. Available online at https://assets.publishing.service.gov.uk/media/68678b6bd520affe4e581cc1/onshore-wind-taskforce-strategy.pdf
[26] UK Government (2025) Carbon budget and growth delivery plan. Available online at: https://www.gov.uk/government/publications/carbon-budget-and-growth-delivery-plan
[27] https://www.theccc.org.uk/publicationtype/report/progress-reports-net-zero/
[28] https://www.theccc.org.uk/publicationtype/report/carbon-budget/

1990[29]. The NPSs are the primary consideration for NSIP applications. Nevertheless, Local Plans are still a material consideration and relevant in deciding an application for a DCO in that they may be determined to be important and relevant, by the SoS.

4.6.1 NORTHUMBERLAND LOCAL PLAN

The Northumberland Local Plan (2016-2036)[30] was adopted on 31st March 2022. The policies of relevance to the Proposed Development are set out in **Table 4.1**. The most relevant for the Proposed Development are Polices REN 1 and REN 2.

Planning applications for onshore wind energy development within the area are expected to demonstrate clearly how all criteria within Policies REN 1 and REN 2 have been addressed and satisfied before planning permission can be granted.

We note the supporting text to the renewable energy policies sets out detail relating to community consultation. As noted above, the requirement for statutory consultation is being removed from the NSIP process. Notwithstanding, the Applicant is committed to undertaking formal consultation with the local community and relevant stakeholders. The form of this will be publicised widely to ensure maximum engagement and to give the local community suitable opportunities to view the proposals and provide sufficient time and information so that people wishing to provide comments may do so in an informed manner and within good time.

TABLE 4.1 NORTHUMBERLAND COUNTY COUNCIL LOCAL PLAN POLICIES

Policy
Policy STP 1 Spatial Strategy (Strategic Policy)
Policy STP 2 Presumption in favour of sustainable development (Strategic Policy)
Policy STP 3 Principles of sustainable development (Strategic Policy)
Policy STP 4 Climate change mitigation and adaptation (Strategic Policy)
Policy TRA 7 Aerodrome Safeguarding Areas

[29] His Majesty's Office (HMSO) (1990) Town and County Planning Act
[30] Northumberland County Council (2022) Northumberland Local Plan. Available online at: https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Planning-and-Building/planning%20policy/Local%20Plan/Northumberland-Local-Plan-Adopted-March-2022.pdf

Policy
Policy ENV 1 Approaches to assessing the impact of development on the natural, historic and built environment (Strategic Policy)
Policy ENV 2 Biodiversity and geodiversity
Policy ENV 3 Landscape
Policy ENV 4 Tranquility, dark skies and a sense of rurality
Policy ENV 7 Historic environment and heritage assets
Policy ENV 8 Frontiers of the Roman Empire - Hadrian's Wall World Heritage Site
Policy ENV 9 Conservation Areas
Policy WAT 1 Water Quality
Policy WAT 3 Flooding
Policy WAT 4 Sustainable Drainage Systems
Policy POL 2 Pollution and air, soil and water quality
Policy MIN 4 Safeguarding mineral resources (Strategic Policy)
Policy MIN 5 Prior extraction of minerals
Policy REN 1 Renewable and low carbon energy and associated energy storage
Policy REN 2 Onshore wind energy development
Policy INF 6 Planning Obligations

The key policy requirements of the Local Plan will be examined in the Planning Statement and Policy Compliance Document submitted with the DCO.

4.6.2 LOCAL PLAN REVIEW MAY 2025

Northumberland County Council undertook a review of the Local Plan in May 2025[31]. It found that overall, the Local Plan is up to date and effective and that it is still an appropriate basis for deciding planning applications in Northumberland. It did, however, find that there are specific elements of certain policies which show a degree of discord or conflict based on updated

[31] Northumberland County Council (2025) Northumberland Local Plan Evaluation Report. Available online at: https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Planning-and-Building/planning%20policy/Local%20Plan/Northumberland-Local-Plan-Evaluation-Report-May-2025.pdf

national policy and guidance. This was identified for the renewable energy policy REN 2. The review also recommends preparing a new Local Plan. This will help policies stay effective for managing future developments.

In relation to Policy REN 1, the review found that revisions to the NPPF have strengthened the support that can be given to renewable energy projects in decision–making and found that the policy is broadly in conformity with the NPPF and remains effective for decision making.

In relation to Policy REN 2, the review found that "P*art 1 of the policy is no longer consistent with the NPPF*". Noting at page 56 that, *"NPPF no longer requires onshore wind energy developments to be in a suitable area identified in the development plan and demonstrate support by the affected community".*

The review concluded at page 56 in relation to Policy REN 2 that *"Part 1 is no longer consistent with the NPPF. This inconsistency is material in decision making. Any future policy should reflect revisions to national policy".*

The weight afforded to Policy REN 2 in decision making is therefore deemed to be limited.

4.6.3 NORTHUMBERLAND NATIONAL PARK

There is no development within the National Park boundary, with the exception of a section of the grid connection Cable Corridor Options which crosses the south eastern boundary of the National Park. The Northumberland National Park Local Plan was adopted in July 2020[32]. Its policies relate to development within the National Park and will require to be considered in the preparation and assessment of the Proposed Development.

The most relevant policies to the consideration of the Proposed Development are considered to be Policy ST1 Sustainable Development, ST2 General Development Principles and DM13 Renewable Energy.

DM 13 supports small scale renewable energy development and includes a presumption against proposals for large-scale low carbon and renewable energy development unless certain factors can be demonstrated.

Table 4.2 sets out the relevant policies of the Northumberland National Park.

[32] Northumberland National Park Authority (2020) Northumberland National Park Local Plan 2020. Available online at: https://www.northumberlandnationalpark.org.uk/wp-content/uploads/2020/09/Northumberland-National-Park-Local-Plan-July-2020-.pdf

TABLE 4.2 NORTHUMBERLAND NATIONAL PARK LOCAL PLAN

POLICY
Policy ST1 Sustainable Development
Policy ST2 General Development Principles
Policy ST3 Major Development
Policy ST4 Spatial Strategy
Policy DM10 Habitats, Biodiversity and Geodiversity
Policy DM 11 Landscape, Tranquilly And Dark Night Skies
Policy DM 13 Renewable Energy
Policy DM 14 Historic Landscape Assets And Built Heritage
Policy DM 15 Archaeological Heritage

The Northumberland National Park Local Plan underwent a review[33] in July 2025. The review concluded that *"five years after its adoption and following a range of changes to national planning policy and legislation, officers consider that at this time the adopted Northumberland National Park Local Plan 2020 continues to provide an effective strategy for the management of development in Northumberland National Park."* (Page 12)

The key policy requirements of the Northumberland National Park Local Plan will be examined insofar as is relevant in the Planning Statement and Policy Compliance Document submitted with the DCO.

4.7 CONSULTATION AND SCOPING QUESTIONS

Consultation will be undertaken with the following statutory consultees:

- PINS;
- Northumberland County Council; and
- Northumberland National Park.
- Q4.1 - Are there any additional planning policy documents at the local or national level which the Applicant should consider in the preparation of the application and EIA?

[33] Northumberland National Park Authority (2025) Five-year review of Northumberland National Park Local Plan. Available online at: https://www.northumberlandnationalpark.org.uk/wp-content/uploads/2025/07/Local-Plan-Five-year-review-FINAL.pdf

5. DESIGN ITERATION AND LAYOUT

5.1 INTRODUCTION

This chapter details the site selection and design process completed to establish the current layout of the Proposed Development (the 'Scoping Layout'). The approach to be applied to determine the final design is also set out.

5.2 SITE SELECTION AND ALTERNATIVES

5.2.1 SITE SELECTION

Early selection of the Site for wind energy was primarily driven by the following criteria:

- A desk-based assessment to identify land suitable for development using Geographical Information Systems (GIS) by mapping technical and environmental constraints. These constraints included but were not limited to:
  - Nationally designated landscapes such as National Parks and National Landscapes / Areas of Outstanding Natural Beauty;
  - Cultural heritage designations such as World Heritage Sites, Scheduled Monuments, Listed Buildings, Conservation Areas and Registered Battlefields;
  - Application of the mitigation hierarchy, seeking firstly to avoid impacts on ecological designations such as Site of Special Scientific Interest (SSSI), Special Protection Area (SPA), Special Area of Conservation (SAC), Historic Gardens, Ancient Woodland, Peatland and Local Nature Reserves (LNR);
  - Terrain and ground conditions, to ensure gradients supported the placement of a wind turbine, turbine foundations, access track, cable installation and hardstanding areas;
  - Wind resource of the area was considered using publicly available wind data sources to assess wind speed and commercial viability;
  - Proximity to nearby residential properties; and
  - Aviation constraints including licensed aerodromes and visibility to military and civilian Radio Detection And Ranging (RADARs).
- The GIS site search must identify an area of sufficient scale for an adequate number of turbines or capacity to accommodate a commercially viable scheme;

- Consideration of relevant planning and energy policy insofar as it influences the suitability and deliverability of alternative sites, including the presence of policy constraints and alignment with national objectives for low-carbon energy infrastructure;
- Access to the Site from a port for delivery of turbine components to each of the turbine locations;
- Ability for extant land uses to be maintained as much as practicable alongside the simultaneous operation of wind turbines; and
- Availability of land and indication of interest from landowners in supporting the Proposed Development.

Site specific rationale:

- The Site lies adjacent to the existing Ray Wind Farm which has been operational since 2017. In 2023 a BESS was added to the operational Ray Wind Farm site, helping maintain dependable electricity access for homes and businesses and demonstrates the proven suitability of the area for energy infrastructure and its ongoing role in supporting network resilience and dependable electricity supply;
- Co-locating the Proposed Development alongside the existing Ray Wind Farm enables development to be concentrated within an area already characterised by wind energy infrastructure. This approach reduces the potential for the dispersion of impacts across the wider landscape and aligns with good practice in reducing effects. This consideration is particularly important given the limited availability of unconstrained land within the county, which includes extensive designated areas;
- The extent of environmental designations and policy constraints within the county significantly restricts the number of locations where wind farm development could be considered acceptable in principle. Against this context, the Site represents one of a relatively small number of locations where wind energy development has already been demonstrated to be viable;
- The Applicant has an existing relationship with one of the primary landowners due to their previous development of Ray Wind Farm, this provides a strong degree of certainty in terms of land access, cooperation and deliverability, which is a relevant consideration in the progression of site options;
- The Site offers the potential for connection to a viable substation, having regard to cable route length and available capacity at the substation;

- The local community has prior experience of wind energy development through the operation of the existing Ray Wind Farm and the associated community benefit fund. This has demonstrated the potential for positive local outcomes and informs the suitability of the Site as a location where further renewable energy development can be integrated into the local area; and
- The Proposed Development would make a meaningful contribution to the UK's legally binding commitment to achieve net zero greenhouse gas emissions by 2050 and the ambition to fully decarbonise the electricity system by 2035. The installation of modern turbines with a tip height of up to 230 metres at a proven wind energy location would maximise energy generation potential while limiting the need to introduce wind energy infrastructure into new, undeveloped areas.

5.2.2 ALTERNATIVES

Under Regulation 14(2) Schedule 4, paragraph 2 of the EIA Regulations 2017, an ES must include:

A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.

The ES will follow the requirements of the EIA Regulations and include a description of any reasonable alternatives considered by the Applicant, including a description of how consideration of effects has informed the design of the Proposed Development.

The default alternative is the 'do nothing' scenario. However, this would not be consistent with the UK Government's legally binding commitment to achieve net zero greenhouse gas emissions by 2050, nor its ambition to fully decarbonise the electricity system by 2035. The Government's Onshore Wind Taskforce Strategy (2025) confirms strong policy support for accelerating onshore wind development, with a stated ambition to deliver approximately 27–29 GW of onshore wind capacity by 2030. In addition, recent evidence from Contracts for Difference allocation rounds demonstrates that onshore wind represents one of the lowest-cost forms of new electricity generation in the UK,

Therefore, the 'do nothing' alternative would fail to avoid wider effects, as it would perpetuate reliance on higher-emission forms of electricity generation and forego opportunities for habitat enhancement, increased biodiversity,

land-use efficiency and strategic reductions in air pollution and greenhouse gas emissions.

5.3 DEVELOPMENT DESIGN STRATEGY

Aspects of the layout of the Proposed Development, including access tracks, crane hardstanding areas and temporary construction compounds, as well as the turbine areas, will be designed to reduce adverse environmental effects where practicable through careful design and good practice construction methods.

Figure 2.1: Site Layout presents the indicative turbine layout of the Proposed Development, which has taken currently known environmental and technical constraints into consideration. This layout will be further developed as the project progresses towards design freeze for the ES.

5.4 KEY ENVIRONMENTAL CONSIDERATIONS

Landscape and Visual (**Chapter 6**), Cultural Heritage and Archaeology (**Chapter 7**), Ornithology (**Chapter 8**), and Noise (**Chapter 13**) have been identified through preliminary reviews of the Study Area Baseline as key environmental considerations due to the high likelihood of adverse significant effects within this Report due to the potential for adverse environmental effects in the absence of mitigation. The iterative design process will consider the likely significant effects on environmental receptors covered by these categories, as assessed in the ES, with the primary objective being to reduce adverse effects on key receptors in the surrounding area, as far as reasonably practicable. Other constraints that may influence the design of the Proposed Development include ecology (**Chapter 9**), peat (**Chapter 10**), water resources and flood risk (**Chapter 11**), access and traffic (**Chapter 12**), climate change (**Chapter 14**), socio-economics (**Chapter 15**) and those issues considered under 'other issues' (**Chapter 16**).

5.5 THE DESIGN ITERATION PROCESS

The layout of the Proposed Development will evolve further throughout the EIA process. This iterative approach will allow the findings of the pre-application community consultation events, along with the EIA and feedback from consultees, to guide the evolution of the Proposed Development, and will allow the design to be modified to avoid, prevent, reduce or offset likely significant effects where practicable.

To date, a first design workshop between ERM technical experts and the Applicant has been undertaken where on and off-Site constraints were

discussed. The outcome of the workshop was the development of the Scoping Layout of 20 turbines at a maximum of up to 230 m height-to-tip (presented in **Figure 2.1: Site Layout**). This layout is considered as the Scoping Layout and forms the basis of assessment within this Report. Workshops and discussions, involving the ERM and the Applicant project team as well as consultees, will be held during the EIA process to inform and refine the design.

6. LANDSCAPE AND VISUAL

6.1 INTRODUCTION

This chapter outlines the approach and scope of the Landscape and Visual Impact Assessment (LVIA) to the Proposed Development. LVIA is a tool used to identify, describe, and evaluate the nature and significance of likely significant effects that may arise from a development proposal on the landscape as a resource, and on views and visual amenity as experienced by people.

While the approach to assessing landscape and visual effects is closely linked, landscape and visual effects will be assessed separately based on the following distinction:

- The assessment of landscape effects will comprise an evaluation of effects on the landscape as an environmental resource in its own right, including its constituent elements, aesthetic and perceptual qualities, and overall character; and
- The assessment of visual effects will comprise an evaluation of effects on views available to people and on visual amenity, including changes to specific viewpoints and the general experience of the landscape as perceived from key locations.

To inform the scoping of the LVIA, a Study Area extending to 45 km from the Site of the proposed wind farm has been adopted. For consideration of the grid connection, a Study Area of 1 km has been adopted. The extent of the Study Area is shown in **Figure 6.1: Landscape and Visual Assessment Study Area**.

The chapter is supported by the following figures and should be read in conjunction with the description of the Proposed Development presented in **Chapter 2: The Proposed Development**.

- Figure 6.1: Landscape and Visual Assessment Study Area;
- Figure 6.2: Landscape Character Areas;
- Figure 6.3: Landscape Designations;
- Figure 6.4: Viewpoint Location Plan;
- Figure 6.5: Turbine Blade Tip Height Zone of Theoretical Visibility to 45 km; and
- Figure 6.6: Turbine Blade Tip Height Zone of Theoretical Visibility to 20 km.

6.2 LEGISLATION, POLICY AND GUIDANCE

The LVIA will be prepared in accordance with current policy, legislation and good practice guidance as outlined below.

6.2.1 LEGISLATION

6.2.1.1 EUROPEAN LANDSCAPE CONVENTION

The UK is a member state of the Council of Europe and a signatory to the European Landscape Convention (ELC) 2004[34] which promotes the protection, management and planning of landscapes and organises international co-operation on landscape issues. This introduces the concept of all landscapes having value in terms of quality of life and wellbeing. Signatories commit to:

'acknowledging that the landscape is an important part of the quality of life for people everywhere: in urban areas and in the countryside, in degraded areas as well as in areas of high quality, in areas recognised as being of outstanding beauty as well as everyday areas'.

The LVIA will be a development specific process which accords with Article 6C of the ELC, which states:

1. With the active participation of the interested parties, as stipulated in Article 5.c, and with a view to improving knowledge of its landscapes, each Party undertakes:

a. i. to identify its own landscapes throughout its territory;

ii. to analyse their characteristics and the forces and pressures transforming them;

iii. to take note of changes; b. to assess the landscapes thus identified, taking into account the particular values assigned to them by the interested parties and the population concerned.

2. These identifcation and assessment procedures shall be guided by the exchanges of experience and methodology, organised between the Parties at European level pursuant to Article 8.

The LVIA will be informed by extant Landscape Character Assessment studies, which more directly relate to the provision of Article 6C.

[34] Council of Europe (2004) European Landscape Convention (as amended). Available online at: https://rm.coe.int/16807b6bc7

6.2.2 NATIONAL PLANNING POLICY

6.2.2.1 NATIONAL POLICY STATEMENTS

The energy National Policy Statements (NPSs), EN-1 – EN-6, outline the government's policy for delivering major energy infrastructure. The NPSs that are of relevance to the Proposed Development are:

- Overarching National Policy Statement for Energy (EN-1) (2025)[35];
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (2025)[36]; and
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (2025)[37].
- Details of specific policies within EN-1, EN-3 and EN-5 that are considered relevant to LVIA are set out in **Table 6.2.**

[35] Department for Energy Security & Net Zero, (2025), *Draft: Overarching National Policy Statement for energy (EN-1)*. Available online at: https://www.gov.uk/government/consultations/planning-for-new-energy-infrastructure-2025-revisions-to-national-policy-statements/draft-overarching-national-policy-statement-for-energy-en-1-accessible-webpage#introduction
[36] Department for Energy Security & Net Zero, (2025) *Draft National Policy Statement for Renewable Energy Infrastructure (EN-3)*. Available online at: https://assets.publishing.service.gov.uk/media/6809f0588c1316be7978e7cb/draft-nps-en-3.pdf
[37] Department for Energy Security & Net Zero, (2025). *Draft National Policy Statement for Electricity Networks Infrastructure (EN-5)*. Available online at: https://assets.publishing.service.gov.uk/media/681dda13c66deec8488f7e66/draft-nps-en-5-electricity-networks-infrastruture.pdf

TABLE 6.1 NATIONAL PLANNING POLICY STATEMENTS

NPS Reference	NPS Requirement
EN-1, paragraph 5.10.6	*"Projects need to be designed carefully, taking account of the potential impact on the landscape. Having regard to siting, operational and other relevant constraints the aim should be to minimise harm to the landscape, providing reasonable mitigation where possible and appropriate."*
EN-1, paragraph 5.10.13 - 15	*"All proposed energy infrastructure is likely to have visual effects for many receptors around proposed sites". "The Secretary of State will have to judge whether the visual effects on sensitive receptors, such as local residents, and other receptors, such as visitors to the local area, outweigh the benefits of the project".* *"Coastal areas are particularly vulnerable to visual intrusion because of the potential high visibility of development on the foreshore, on the skyline and affecting views along stretches of undeveloped coast."*
EN-1, paragraph 5.10.16	*"The applicant should carry out a landscape and visual impact assessment and report it in the ES, including cumulative effects."*
EN-1, paragraph 5.10.17	*"The landscape and visual assessment should include reference to any landscape character assessment and associated studies as a means of assessing landscape impacts relevant to the proposed project. The applicant's assessment should also take account of any relevant policies based on these assessments in local development documents in England…".*
EN-1, paragraph 5.10.19	*"The applicant should consider landscape and visual matters in the early stages of siting and design, where site choices and design principles are being established."*
EN-1, paragraph 5.10.20	*"The assessment should include the effects on landscape components and character (including key characteristics) during construction and operation"*

NPS Reference	NPS Requirement
EN-1, paragraph 5.10.21	*"The assessment should include the visibility and conspicuousness of the project during construction and of the presence and operation of the project and potential impacts on views and visual amenity. This should include light pollution effects, including on dark skies, local amenity, and nature conservation."*
EN-1, paragraph 5.10.22	*"The assessment should also address the landscape and visual effects of light pollution, and other emissions from construction and operational activities on residential amenity and on sensitive locations, receptors and views, how these will be minimised."*
EN-1, paragraph 5.10.24	*"Applicants should consider how landscapes can be enhanced using landscape management plans, as this will help to enhance environmental assets where they contribute to landscape and townscape quality."*
EN-1, paragraph 5.10.27-28	*"Adverse landscape and visual effects may be minimised through appropriate siting of infrastructure within its development site and wider setting. The careful consideration of colours and materials will support the delivery of a well-designed scheme, as will sympathetic landscaping and management of its immediate surroundings."* *"Depending on the topography of the surrounding terrain and areas of population it may be appropriate to undertake landscaping off site. For example, filling in gaps in existing tree and hedge lines may mitigate the impact when viewed from a more distant vista."*
EN-3 paragraph 2.3.6	*"When considering applications for CNP Infrastructure in sites with nationally recognised designations (such as SSSIs, National Nature Reserves, National Parks, the Broads, National Landscapes, Registered Parks and Gardens, Listed Buildings and Scheduled Monuments, designated Marine Protected Areas (MPAs) and World Heritage Sites), the Secretary of State will take as the starting point that the relevant tests in Sections 5.4 and 5.10 of EN-1*

NPS Reference	NPS Requirement
	have been met, and any significant adverse effects on the qualities for which the area has been designated are clearly outweighed by the urgent need for this type of infrastructure."
EN-3 paragraph 2.5.2	*"Proposals for renewable energy infrastructure should demonstrate good design, particularly in respect of landscape and visual amenity, opportunities for co-existence/co-location with other marine and terrestrial uses, and in the design of the project to mitigate impacts such as noise and effects on ecology and heritage."*
EN-3 paragraph 2.12.98	*"Applicants should carry out a landscape and visual assessment and report it in the ES. Visualisations and photomontages will be required to demonstrate the likely effects of a proposed onshore wind farm on the landscape and any nearby residential areas or viewpoints. Zone of Theoretical Visibility (ZTV) studies are also particularly useful in demonstrating the likely extent of visibility. An assessment of the potential impacts on the statutory purposes of protected landscapes should form a part of the pre-application process."*
EN-3 paragraph 2.12.99	*"Applicants should follow the criteria for good design set out in Section 4.7 of EN-1 when developing projects and will be expected to direct considerable effort towards minimising the landscape and visual impact of onshore wind farms especially within nationally designated landscapes and their settings."*
EN-3 paragraph 2.12.125	*"Applicants should mitigate the main landscape and visual impacts to a localised level through design insofar as practically possible, noting some wider visual impacts are also likely to be expected given the nature of the technology. Whether impacts are localised will need to be considered on a case-by-case basis depending on the individual circumstances of the project, location and nature of the impacts. Considerations of whether the main impacts are localised will likely include the geographic or spatial extent of the impacts and the importance of the receptor."*

NPS Reference	NPS Requirement
EN-5 paragraph 2.9.14	*"Where the nature or proposed route of an overhead line will likely result in particularly significant landscape and visual impacts, as would be assessed through seascape, landscape and visual impact assessment (SLVIA), the applicant should demonstrate that they have given due consideration to the costs and benefits of feasible alternatives to the overhead line. This could include, where appropriate re-routing, underground or subsea cables and the feasibility e.g. in cost, engineering or environmental terms of these. Applicants should note the policy position for nationally designated landscapes at paragraph 2.9.21 below."*
EN-5 paragraph 2.9.21	*"Although it is the government's position that overhead lines should be the strong starting presumption for electricity networks developments in general, this presumption is reversed when proposed developments will cross part of a nationally designated landscape (i.e. National Park, The Broads, or National Landscape)."*

6.2.2.2 NATIONAL PLANNING POLICY FRAMEWORK

National Planning Policy Framework (NPPF)[38], sets out the Government's planning policies for England, and how they are expected to be applied.

Chapter 15, Conserving and enhancing the natural environment, Paragraph 187 of the NPPF states, inter-alia, that:

"Planning policies and decisions should contribute to and enhance the natural and local environment by:

a) protecting and enhancing valued landscapes… (in a manner commensurate with their statutory status or identified quality in the development plan);

b) recognising the intrinsic character and beauty of the countryside…; [and] c) maintaining the character of the undeveloped coast…".

6.2.3 LOCAL PLANNING POLICY

Local planning policy relevant to landscape and visual matters will be identified and drawn from the Northumberland Local Plan 2016-2036. Key policies include:

- Policy ENV 3 Landscape; and
- Policy ENV4 Tranquillity, dark skies and a sense of rurality.

The Northumberland National Park Local Plan adopted in 2020 key policies include:

- Policy DM 11 Landscape, Tranquilly and Dark Night Skies.

6.2.4 GUIDANCE

Supplementary guidance documents and technical papers relating to renewable energy, onshore wind energy and landscape character. These include:

- Northumberland Landscape Character Assessment[39];

[38] Ministry of Housing, Communities & Local Government. (2024), National Planning Policy Framework. Available online at: https://assets.publishing.service.gov.uk/media/67aafe8f3b41f783cca46251/NPPF_December_2024.pdf

[39] Northumberland County Council, (2010), *Northumberland Landscape Character Assessment*. Available online at: https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Planning-and-Building/planning%20policy/Studies%20and%20Evidence%20Reports/Landscape%20Green%20Spaces%20Studies/1.%20Landscape%20Character/Landscape-Character-Part-A.pdf

- Landscape and Operational Wind Farms Study (2015)[40];
- Landscape Sensitivity Study to Wind Turbine Development (2018)[41]; and
- Potential Suitable Areas for Wind Energy Development Technical Paper (December 2018)[42].

6.3 BASELINE CONDITIONS AND KEY SENSITIVITIES

6.3.1 THE SITE AND ITS SURROUNDINGS

The Site within which the proposed turbines would be located comprises areas of farmland, open moorland and forestry, extending to a total area of approximately 1402 ha. The Site is relatively flat, ranging between 230 and 320 m AOD. The landscapes surrounding the Site comprise a mosaic of land uses. To the east of the Site these typically comprise agricultural farmland as the upland plateau gives way to lower lying coastal landscapes. To the west the landscapes typically comprise upland landscapes of open moorland and forestry. The A696 passes through the Site and the A68 passes approximately 1.4 km to the west of the Site. The operational Ray Wind Farm is located to the immediate south of the Site, it comprises 16 turbines and began operation in 2017.

The route of the grid connection would extend to an approximate length of 20 km linking the wind farm Site with the Fourstones substation near Hexham. At

[40] Northumberland County Council, (2015), *Assessment of the Extent to Which Existing Onshore Wind Developments in Northumberland have been Successfully Accommodated into the Landscape*. Available online at: https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Planning-and-Building/planning%20policy/Studies%20and%20Evidence%20Reports/Energy%20Studies/3.%20Landscape%20Operational%20WF/Landscape-and-Operational-Wind-Farms-Study-May-2015.pdf

[41] Northumberland County Council, (2018). *Assessment of the Sensitivity of the Landscapes of Northumberland to Wind Energy Development.* Available online at: https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Planning-and-Building/planning%20policy/Studies%20and%20Evidence%20Reports/Energy%20Studies/4.%20Landscape%20Sensitivity%20Study/NCC-Landscape-Sensitivity-to-Wind-Energy-Development-January-2018.pdf

[42] Northumberland County Council, (2018), Potentially suitable areas for wind energy development Technical Paper. Available online at: https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Planning-and-Building/planning%20policy/Local%20Plan/Suitable-areas-for-wind-turbine-development-in-Northumberland-Technical-Paper-December-2018-Final.pdf

present the route passes through a mix of land uses including farmland (grazing pasture and arable), bog, heathland, and woodland. The Cable Corridor Options passes through a small portion of the Northumberland National Park ('The Park'). The route would be likely to comprise a combination of underground and overhead sections, the connection routing and design to be refined through a process of consultation and environmental assessment.

The location of the Site is shown on **Figure 6.1: Landscape and Visual Assessment Study Area**.

6.3.1.1 LANDSCAPE CHARACTER

At the national level the Site falls within the Northumberland Sandstone Hills National Landscape Character Area which curves across central Northumberland in a series of distinctive flat-topped ridges which provide panoramic views of the Cheviots and the coast. At a regional level the Site is identified as falling within the Outcrop Hills and Escarpments Landscape Character Type. This LCT comprises elevated landscapes of hills that form a distinctive chain of rocky uplands, running the length of the Northumberland Sandstone Hills National Character Area, from the Kyloe Hills in the north, to Great Wanney Crag in the south. The distinctive form of the hills and rich semi-natural vegetation patterns contrast with the surrounding more intensively farmed landscapes. The extent of Landscape Character Areas across the detailed Study Area are shown on **Figure 6.2: Landscape Character Areas**.

6.3.1.2 DESIGNATED AND PROTECTED LANDSCAPES

The Northumberland National Park is located to the immediate north of the Proposed Development, the nearest point being situated in the vicinity of the Winter's Gibbet. The Park covers several distinct areas. In the north of the Park are the Cheviot Hills which mark the border between England and Scotland. Further south, the upland hills give way to areas of rolling moorland, some of which have been covered by forestry plantations (including Kielder Forest). The southernmost part of the Park covers sections of Hadrian's Wall. The North Pennines National Landscape (formerly Area of Outstanding Natural Beauty) is located approximately 25 km to the south of the Proposed Development. The designation encompasses the hills and open moorland landscapes between County Durham/Northumberland in the east and Cumbria to the west. In 2015 the North Pennines were designated as a UNESCO Global Geo Park. The location and extent of designated and protected landscapes across the Study Area are shown on **Figure 6.3: Landscape Designations**.

6.3.1.3 SETTLEMENT

The immediate surrounds to the Proposed Development are sparsely settled, the largest towns comprise Rothbury, Hexham and Morpeth. Smaller villages comprise Otterburn, Elsdon and Bellingham. Individual farmsteads and isolated dwellings are present throughout the Study Area these being typically located on valley slopes or on valley floors leaving the upland plateaux areas largely unsettled.

6.3.1.4 TRANSPORT ROUTES

Major transport routes within the Study Area include the A1(T) and the A69 in addition to the A68, the A696 (which passes through the Site) and the A697. Near the Site these roads are typically straight and follow the alignment of Roman roads. Local access roads create an extensive network serving the dispersed pattern of small settlements. Typically, these roads are confined to river valleys within the upland areas.

The East Coast Mainline railway also passes through the Study Area, passing from south to north across the coastal plains. The Tyne Valley railway passes east to west to the south of the Site and links Newcastle upon Tyne with Carlisle.

6.3.1.5 TOURISM AND RECREATION

The Study Area encompasses a wide range of tourist and recreational interests. Notable locations in the vicinity of the Proposed Development include sites of historic interest such as Hadrian's Wall and nearby Roman forts in addition to Wallington Hall and Cragside as well as Winter's Gibbet. Recreational interests include hiking and recreational opportunities across the Northumberland National Park including Kielder Forest. Dark sky interests are promoted within the National Park, with Dark Sky Discovery Sites at locations such as Elsdon, Alwinton and Kielder. The Site is crossed by four footpaths/bridleways which provide informal recreational opportunities.

6.4 POTENTIAL IMPACTS AND LIKELY SIGNIFICANT EFFECTS

The following potential impacts and likely significant effects on landscape and visual receptors are predicted to result from the Proposed Development and shall be considered in the undertaking of the LVIA and the Cumulative Landscape and Visual Impact Assessment (CLVIA):

- Direct impacts to the landscape fabric/physical features of the Site (including impacts associated with accessing the turbine area) such as

changes to ground cover throughout all phases of the Proposed Development resulting in significant effects;

- Direct and indirect impacts to landscape character and designated landscapes throughout all phases of the Proposed Development resulting in significant effects;
- Impacts on the views and visual amenity of sensitive residential receptors, including nearby settlements and dispersed properties and communities throughout all phases of the Proposed Development resulting in significant effects; and
- Impacts on the views and visual amenity of sensitive recreational receptors, including popular hill tops, throughout all phases of the Proposed Development resulting in significant effects.

The proposed turbines as currently proposed will be greater than 150 m to blade tip and as such permanent visible aviation lighting will be likely to be required when the wind farm is operational. Likely significant effects associated with aviation lighting will be considered as part of the LVIA.

6.5 ASSESSMENT METHODOLOGY

6.5.1 GENERAL

The LVIA will be undertaken by a suitably experienced Chartered Member of the Landscape Institute. It will be prepared in accordance with the principles of best practice, as outlined in published guidance documents. The primary source of guidance will be the Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA)[43] prepared by the Landscape Institute. The LVIA will also draw from the following guidance documents:

- Landscape Institute (2024) LITGN-2024-01 Notes and Clarification on Aspects of the 3rd Edition Guidelines on Landscape and Visual Impact Assessment[44] ;

[43] The Landscape Institute (2024) Guidelines for Landscape and Visual Impact Assessment, Third Edition. Available online at: https://landscapeinstitute.org/policy-practice/technical/assessments-standards/glvia3-panel/

[44] The Landscape Institute, (2024), *Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment Third Edition (GLVIA3).* Available online at: https://www.landscapeinstitute.org/wp-content/uploads/2024/08/LITGN-2024-01-GLVIA3-NC_Aug-2024.pdf

- Landscape Institute (2019) Technical Guidance Note (TGN) 06/19 Visual Representation of Development proposals[45];
- Landscape Institute (2019) TGN 02/19 Residential Visual Amenity Assessment (RVAA)[46];
- Landscape Institute (2021) (TGN02/21): Assessing Landscape Value Outside National Designations[47];
- NatureScot (2017) Siting and Design of Wind Farms in the Landscape[48];
- NatureScot (2017) Visual Representation of Wind Farms (Version 2.2)[49];
- NatureScot (2021) Assessing the Cumulative Impact of Onshore Wind Energy Developments[50];
- NatureScot (2024) Guidance on Aviation Lighting Impact Assessment[51]; and
- Planning Inspectorate (2024) Nationally Significant Infrastructure Projects; Advice on Cumulative Effects Assessment[52].

[45] The Landscape Institute, (2019), *Visual Representation of Development Proposals*. Available online at: https://landscapeinstitute.org/wp-content/uploads/2019/09/LI_TGN-06-19_Visual_Representation-1.pdf
[46] Landscape Institute, (2019), *Residential Visual Amenity Assessment (RVAA)*. Available online at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/03/tgn-02-2019-rvaa.pdf
[47] Landscape Institute, (2021), *Assessing Landscape Value Outside National Designations.* Available online at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2021/05/tgn-02-21-assessing-landscape-value-outside-national-designations.pdf
[48] NatureScot, (2017), Siting and Designing Wind Farms in the Landscape. Available online at: https://www.nature.scot/sites/default/files/2017-11/Siting%20and%20designing%20windfarms%20in%20the%20landscape%20-%20version%203a.pdf
[49] NatureScot, (2017), Visual Representation of Wind Farms. Available online at: https://www.nature.scot/sites/default/files/2019-09/Guidance%20-%20Visual%20representation%20of%20wind%20farms%20-%20Feb%202017.pdf
[50] NatureScot (2021) *Guidance: Assessing the cumulative landscape and visual impact of onshore wind energy developments*. Available online at: https://www.nature.scot/doc/guidance-assessing-cumulative-landscape-and-visual-impact-onshore-wind-energy-developments
[51] NatureScot, (2024), Guidance on Aviation Lighting Impact Assessment. Available online at: https://www.nature.scot/doc/guidance-aviation-lighting-impact-assessment
[52] Planning Inspectorate (2024) Nationally Significant Infrastructure Projects; Advice on Cumulative Effects Assessment

The LVIA will be undertaken through a combination of desktop study and field surveys (including photography), with subsequent analysis and assessment. Full details of the approach and methodology will be provided within the LVIA chapter of the ES.

6.5.2 ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS ON LANDSCAPE RECEPTORS

For landscape receptors the assessment of likely significant effects will require consideration of the nature of the landscape receptor (sensitivity of the receptor) and the nature of the effect on the receptor (magnitude of change). GLVIA3 states that the nature of landscape receptors should be assessed in terms of the susceptibility of the receptor to the type of change proposed, and the value attached to the receptor. The nature of the impact on each landscape receptor will be assessed in terms of scale, geographical extent, duration and reversibility.

The sensitivity of landscape receptor will be assessed in terms of the susceptibility of the receptor to the type of change or development proposed, and the value attached to the landscape. The magnitude of change will be assessed in terms of the scale, geographical extent, duration and reversibility of the effect.

The assessment of the level of effect on landscape receptors will be informed by consideration of the sensitivity of the landscape receptor and the magnitude of landscape change. Levels of landscape effect will be identified as none, negligible, minor, moderate or major where all moderate and major landscape effects will be considered significant in the context of the EIA Regulations.

6.5.3 ASSESSMENT OF EFFECTS ON VISUAL RECEPTORS

Changes in views may be experienced by people at different locations within the Study Area including static locations such as might be experienced from settlements and promoted viewpoints and whilst moving through the landscape (normally referred to as sequential views, e.g. from roads and recreational routes).

GLVIA3 states that the sensitivity of visual receptors should be assessed in terms of the susceptibility of the receptor to change in views and/or visual amenity and the value attached to particular views. The magnitude of change should be assessed in terms of the scale, geographical extent, duration and reversibility of the effect.

The sensitivity of visual receptors will involve consideration of the relationship between the receptors susceptibility to change and the value attached to a

view. The rationale for judgements of sensitivity for each receptor will be clearly set out in relation to both its susceptibility (to the type of change proposed) and the value of the view at that location.

The magnitude of change will be assessed in terms of the scale, geographical extent, duration and reversibility of the visual effect.

The assessment of the level of effect on visual receptors will be informed by consideration of the sensitivity of the visual receptor and the magnitude of visual change. Levels of visual effect will be identified as none, negligible, minor, moderate or major where all moderate and major visual effects will be considered significant in the context of the EIA Regulations.

6.5.4 SIGNIFICANCE OF EFFECTS

The objective of the assessment of the Proposed Development is to predict the likely significant effects on the landscape and visual resource. The EIA Regulations require that the direct and indirect significant effects of the Proposed Development are identified, described and assessed, and therefore the LVIA effects are assessed to be either significant or not significant.

The significance of landscape and visual effects is assessed through consideration of the sensitivity of the landscape or visual receptor and the magnitude of change that will result from the addition of the Proposed Development.

Table 6.2 provides an illustrative significance matrix illustrating how combinations of sensitivity and magnitude of change ratings can give rise to significant effects. The matrix also gives an understanding of the threshold at which significant effects may arise (ratings highlighted in grey are considered to be significant).

TABLE 6.2 SIGNIFICANCE MATRIX (ILLUSTRATIVE)

		Sensitivity			
		High	**Medium**	**Low**	**Negligible**
Magnitude of Change	**High**	**Major**	**Major**	**Moderate**	Minor
	Medium	**Major**	**Moderate**	Minor	Negligible
	Low	**Moderate**	Minor	Minor	Negligible
	Negligible	Minor	Negligible	Negligible	Negligible
	None	None	None	None	None

In accordance with GLVIA3, professional judgement is applied to the assessment of all effects and reasoned justification is presented in respect of the findings of each case.

A significant effect occurs where the Proposed Development will result in a defining influence on a landscape or visual receptor. A not significant effect will occur where the resulting effect of the Proposed Development is not material, and the baseline characteristics of the landscape or visual receptor continues to provide the definitive influence.

6.5.5 VISUALISATIONS

Visualisations will be produced for the Proposed Development for viewpoint locations agreed with key consultees. These will be prepared in accordance with Visual Representation of Development Proposals (Landscape Institute Technical Guidance Note 06/19 (July 2019)). If alternative approaches to the preparation and presentation of visualisations are required these will be discussed as part of the consultation process with statutory consultees. The viewpoint locations proposed for inclusion in the LVIA relative to the Proposed Development are shown on **Figure 6.4: Viewpoint Location Plan**.

6.6 MITIGATION

6.6.1 GENERAL

In regard to landscape and visual matters, the objective in designing the Proposed Development will be to develop a turbine layout that responds to its setting in terms of landform and pattern, and which presents a simple visual image, avoiding the clustering of turbines as far as practicable, and the isolation of outlying turbines seen in views from key locations.

All elements of the Proposed Development infrastructure (including BESS) will be considered in terms of locational and design choice, and the LVIA will set out how the design of ancillary elements has evolved to reduce landscape and visual effects, especially those predicted to affect nearby and sensitive landscape and visual receptors.

Opportunities for landscape mitigation and enhancement, in the form of meaningful and larger scale habitat enhancement and peat restoration if applicable, will also be explored in combination with other technical disciplines and presented in a Habitat Management Plan (HMP).

6.6.2 CONSTRUCTION

Key potential mitigation measures likely to be associated with the construction phase will comprise:

- Routing and siting of elements of the Proposed Development to avoid notable landscape features wherever practicable;
- Preparation and adoption of an outline Construction Environmental Management Plan (oCEMP) to reduce adverse environmental effects;
- An outline Landscape and Ecology Management Plan (oLEMP) will be prepared which will set out short term and long-term landscape and ecological objectives for the Proposed Development, including the proposed restoration measures following construction taking account of the surrounding local landscape character;
- Habitat creation, such as woodland planting, to be consistent with the local landscape character;
- Native grass/moorland species to be planted around access tracks to assist in blending the track into the surrounding moorland context; and
- Careful consideration of any planting proposals to complement the local landscape character.

6.6.3 OPERATION AND MAINTENANCE

Key potential mitigation measures likely to be associated with the operation and maintenance phase, pending further consideration as the design evolves will comprise:

- Consideration of the layout of the wind turbines and ancillary infrastructure to reduce landscape and visual effects where practicable, including consideration of separation between key receptors and wind turbine locations, and the overall composition of turbines when viewed from locations surrounding the Proposed Development; and
- An oLEMP will be prepared, as described above.

6.6.4 DECOMMISSIONING

An outline Decommissioning Environmental Management Plan (oDEMP) will be prepared and adopted to reduce adverse environmental effects associated with this phase of the Proposed Development.

6.7 SCOPE OF THE ES CHAPTER

6.7.1 GENERAL

The Proposed Development will have a direct impact on the landscape fabric or physical elements of the landscape due to the removal or alteration to the vegetation and land cover to accommodate the various components of the Proposed Development. The main source of landscape and visual impacts from the Proposed Development will be the appearance of the wind turbines from the surrounding landscape resource and in views obtained by people in the surrounding area. The effect of other elements of the Proposed Development such as the access tracks, substation and other ancillary elements, which may be visible from the surrounding area, will also be assessed.

The LVIA will establish:

- A clear understanding of the Site and it's setting in respect of landscape character;
- The Proposed Development and its relationship with the landscape character and visual amenity;
- The potential impacts and likely significant effects of the Proposed Development upon landscape character; and
- The potential impacts and likely significant effects of the Proposed Development on visual receptors, including where required sequential visual effects.

In accordance with the guidance provided in GLVIA3 a proportionate and reasonable approach to the LVIA will be undertaken with a focus on where significant adverse effects are likely to arise.

6.7.2 STUDY AREA

Drawing from NatureScot guidance the LVIA will consider an initial Study Area extending to a 45 km radius from proposed turbine locations. Review and refinement of this Study Area will be undertaken as the layout to the Proposed Development is finalised. Preliminary analysis of the ZTV for the Proposed Development in conjunction with an initial understanding of the baseline conditions of the Site and its surrounding context indicates that the potential for significant effects would be largely concentrated within a smaller area.

A detailed Study Area to the LVIA extending to 20 km from the outermost turbines is therefore proposed to ensure a targeted and proportionate approach focused on potential likely significant effects. Targeted assessment of national level landscape designations and/or identified key visual

receptors/viewpoints will be undertaken beyond this distance out to 45 km where potential for likely significant effects is identified at initial assessment stages.

The Study Area also includes the full extent of the Cable Corridor Options. The assessment of the cable connection will concentrate on a 1 km buffer either side of the proposed route, with the key consideration being the effects arising from the construction and operational phases. The 1 km buffer is considered proportionate to the likelihood of significant landscape and visual effects resulting from a pole mounted grid connection, with effects beyond 1 km being very unlikely to result in a significant adverse effect.

6.7.3 CONSULTATION

Consultation will be carried out with Northumberland County Council, Natural England and Northumberland National Park Authority in the first instance. Initial LVIA consultation commenced in February 2026 and will continue throughout the EIA phase.

The detail of this consultation will depend on the refinement of the Cable Corridor Options. The consultation will also include consideration of other matters including the daytime and hours of darkness viewpoints to be referred to in the LVIA and cumulative wind farms (and other relevant projects) to be referred to in the cumulative assessment.

6.7.4 CUMULATIVE EFFECTS

The CLVIA will be carried out in accordance with the principles outlined in GLVIA3 and NatureScot guidance (Guidance - Assessing the cumulative landscape and visual impact of onshore wind energy developments)[53].

The assessment of cumulative effects will include consideration of planned wind farm developments within a 45 km radius Study Area with a focus on those likely to give rise to a significant adverse effect by virtue of proximity to the Proposed Development and/or scale. Beyond 45 km cumulative wind farm developments are unlikely to give rise to a significant adverse effect on landscape and visual receptors. Wind farms considered will include developments under construction, consented developments awaiting implementation and proposals awaiting determination within the planning process with design information in the public domain. Sites at screening and

[53] NatureScot (2021) Guidance - Assessing the cumulative landscape and visual impact of onshore wind energy developments. Available online at: https://www.nature.scot/doc/guidance-assessing-cumulative-landscape-and-visual-impact-onshore-wind-energy-developments

scoping stage will not be considered as part of the CLVIA as the information relating to these is likely to be limited and subject to change when submitted for determination. Existing wind farms will be considered as part of the main assessment as they feature within the baseline conditions within the Study Area.

Should further developments emerge during the EIA process, these will also be considered up to three months prior to submission of the application.

6.7.5 RESIDENTIAL VISUAL AMENITY ASSESSMENT

Northumberland County Council will be consulted on the requirement for a RVAA as the layout of the Proposed Development is refined and distances to the nearest residential receptors confirmed. RVAAs are typically undertaken when there is potential for the visual amenity of a dwelling to be compromised by the proximity, size or scale of a given development to such an extent that the impact on residential amenity would be unacceptable.

As the layout of the Proposed Development is refined and proximity to residential locations is established, a residential visual amenity assessment may be undertaken, if appropriate, for private properties falling within 1.5 km to 2 km of the nearest turbine in accordance with the guidance provided in Residential Visual Amenity Assessment Technical Guidance Note 2/19[54]. Where an RVAA is required, it will be included with the LVIA as a technical appendix.

6.7.6 AVIATION LIGHTING/NIGHT-TIME ASSESSMENT

In the interests of aviation safety, structures, including turbines greater than 150 m in height, require visible aviation lighting in accordance with the Civil Aviation Authority (Air Navigation) Order 2016[55]. Potential impacts arising from the necessity for visible lighting (which typically consists of 2000 candela red lights mounted on the turbine nacelle and intermediate 32 candela lights mounted on the turbine tower) will be a key consideration. Informed by current NatureScot visualisation guidance and scoping advice the assessment will consider the effects of aviation lighting.

[54] The Landscape Institute (2019) Residential Visual Amenity Assessment (RVAA): Technical Note 2/19. Available online at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/03/tgn-02-2019-rvaa.pdf

[55] Civil Aviation Authority (2016) Policy and Guidance on Wind Turbines. Version 6. CAP764. Available online at: https://www.caa.co.uk/publication/download/14561

The assessment will be carried out as part of the LVIA and be included within a technical appendix to the ES. Visibility of turbine lighting from each LVIA viewpoint will be considered, however the night-time/hours of darkness assessment will focus on viewpoints from which significant effects will be anticipated and will be agreed through consultation with NNPA and Northumberland County Council.

6.7.7 LANDSCAPE AND VISUAL RECEPTORS

Table 6.3 presents the Landscape and Visual matters that are likely to give rise to significant adverse effects and, therefore, which are proposed to be scoped in to the detailed assessment.

TABLE 6.3 SCOPE OF THE LANDSCAPE AND VISUAL ASSESSMENT

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
Effects of the Proposed Development in relation to landscape features/landscape fabric within the Site that would be directly affected.	Scoped In	Key to understanding the likely significant effects of the Proposed Development on landscape features within the Site.
Effects of the Proposed Development on the key characteristics and defining features of landscape character units within the Study Area, with a focus on landscapes within approximately 20 km of the Site, and 1 km of the Cable Corridor.	Scoped In	Key to understanding the likely significant effects of the Proposed Development on landscape character.
Effects upon the special qualities of the national and local landscape designations within the Study Area.	Scoped In	Key to understanding the likely significant effects of the Proposed Development on designated and protected landscapes.
Effects on views and visual amenity of residents of the nearby settlements including Elsdon, Otterburn and Bellingham	Scoped In	Key to understanding the likely significant effects of the Proposed Development on the views and visual amenity of people within settlements.
Effects on views from public roads and transport routes including the A68, A696 and the A697. Effects to be considered include those experienced in combination with other wind farm developments.	Scoped In	Key to understanding the likely significant effects of the Proposed Development on the views and visual amenity of people travelling through the landscape.
Effects upon views experienced by recreational receptors of long-distance routes including the	Scoped In	Key to understanding the likely significant effects of the Proposed Development on the

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
Pennine Way and PRoWs that cross or are close to the Site.		views and visual amenity of long-distance recreational routes.
Visitors to tourist attractions and visitors to outdoor recreational locations within the Study Area. These will include visitors to Hadrian's Wall and visitors to popular recreational destinations within the Northumberland National Park	Scoped In	Key to understanding the likely significant effects of the Proposed Development on the views and visual amenity of tourists and outdoor recreationalists.
Nighttime/hours of darkness effects resulting from aviation lighting	Scoped In	Key to understanding the likely significant effects of the Proposed Development on dark sky qualities and nighttime views.
Consideration of landscape and visual receptors beyond 20 km of the proposed wind turbines	Scoped Out	Effects on landscape and visual receptors beyond 20 km of the proposed turbines are unlikely to be significant due to distance and likely limited influence on perception of the landscape and on views and visual amenity.
Consideration of cumulative landscape and visual effects resulting from cumulative developments beyond 20 km of the proposed turbines	Scoped Out	Cumulative effects on landscape and visual receptors beyond 20 km of the proposed turbines are unlikely to be significant due to distance and likely limited influence on perception of the landscape and on views and visual amenity.
Consideration of cumulative developments with fewer than three turbines, or less than 50 m in height, unless located within 5 km of the proposed turbines.	Scoped Out	Cumulative effects resulting from these developments in combination with the Proposed Development are unlikely to be

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
		significant due to the scale of the development.
Consideration of landscape and visual receptors within 20 km of the proposed wind turbines with no or limited visibility of the proposed turbines.	Scoped Out	Effects on landscape and visual receptors within 20 km of the proposed turbines with no or limited visibility are unlikely to be significant.
Consideration of effects on residential visual amenity for residential receptors beyond 2 km of the proposed turbines.	Scoped Out	Effects are unlikely to reach the residential visual amenity threshold beyond 2 km.

6.7.8 VIEWPOINTS

The LVIA will be supported by analysis of representative viewpoints. The viewpoints will be selected to represent a range of views and viewer types; including settlements, transport routes, recreational routes, main visitor locations, landscape character areas/landscape character types and landscape designations. The context of views currently experienced by visual receptor locations will be described in the viewpoint assessment.

The preliminary list of viewpoints to the LVIA are listed in **Table 6.4.** The acceptability of these viewpoints and requirement for additional views will be established through consultation with statutory consultees.

. These draw from the viewpoints previously considered as part of the Ray Wind Farm application and consideration of preliminary ZTV mapping to the Proposed Development. The viewpoints reflect varying distances, directions and elevations relative to the Proposed Development. The initial ZTVs, showing the proposed viewpoint locations are illustrated by **Figure 6.5: Turbine Blade Tip Height Zone of Theoretical Visibility to 45 km** and **Figure 6.6: Turbine Blade Tip Height Zone of Theoretical Visibility to 20 km**.

The acceptability of these viewpoints and requirement for additional views will be established through consultation with statutory consultees.

TABLE 6.4 PROPOSED VIEWPOINTS

Viewpoint No.	Name	Easting	Northing	Distance and Direction to the Proposed Development	Basis for Selection
1	View north east from Great Wanney Crag	393170	583408	0.46 km southeast	Hill walkers
2	View east from Stiddlehill Common	393032	584701	0.69 km north	Road users
3	View north west from Minor road at Cornhills	396946	584322	0.72 km east	Road users Residents
4	View south from A969 west of Ottercops	394447	589338	0.01 km southwest	Road users
5	View west from A696 at Knowesgate	398907	585612	0.00	Road users Residents
6	View south from Winter's Gibbet	396205	590771	0.00	Road users Walkers
7	View north east from A68 south of Ridsdale	390853	584294	0.29 km east	Road users Residents
8	View west from Kirkwhelpington	399395	584610	0.38 km northwest	Road users Residents
9	View east from minor road south of East Woodburn	390708	586624	0.86 km southeast	Road users Residents
10	View north from trig point north of Great Bavington	398083	580823	1.51 km north	Road users

Viewpoint No.	Name	Easting	Northing	Distance and Direction to the Proposed Development	Basis for Selection
11	View west from B6342 at Harwood Gate	401820	589354	3.35 km west	Road users Residents
12	View north west from Kirkharle	401417	582177	2.77 km west	Road users Tourists-visitors
13	View west from Wallington Estate	403107	584155	3.38 km northwest	Road users Tourists-visitors
14	View south from B6341 north of Elsdon	393784	595330	4.47 km south	Road users Residents
15	View east from Corsenside Common	386447	588006	3.79 km east	Hill walkers
16	View east from A68 north of B6320	387218	591981	3.61 km southeast	Road users
17	View west from B6343 east of Scot's Gap	405842	586662	5.72 km west	Road users Residents
18	View north west from footpath to Shaftoe Crags	405316	582382	6.18 km northwest	Hill walkers
19	View east from Pennine Way south of Bellingham	383533	581167	6.32 km southeast	Hill walkers

Viewpoint No.	Name	Easting	Northing	Distance and Direction to the Proposed Development	Basis for Selection
20	View south from summit of Simonside	402400	598699	10.06 km southwest	Hill walkers
21	View north from A68 at Beukley	398035	570885	8.21 km west	Road users
22	View north from Hadrian's Wall near Milecastle 30	387767	571562	0.68 km northeast	Road users Walkers
23	View north from Hadrian's Wall near Errington Hill Head	394994	569433	4.93 km west	Residents Walkers
24	View east from Pennine Way at Padon Hill	381980	592836	8.77 km southeast	Hill walkers
25	View north west from A696 west of Belsay	409394	579259	11.25 km west	Road users
26	View north east from Hadrian's Wall at Sewingshields Crags	380019	570055	8.43 km east	Hill walkers
27	View south from Copper Snout / Clennell Street Walk	389086	609762	19.26 km south	Hill walkers
28	View north from B6305 west of Hexham	385035	561333	7.99 km northeast	Road users

Viewpoint No.	Name	Easting	Northing	Distance and Direction to the Proposed Development	Basis for Selection
29	View south from Elsdon	393638	593196	2.35 km south	Residents
30	View south east from Otterburn	388779	593126	3.35 km southeast	Road users Residents

No viewpoints have been selected in relation to the Cable Corridor Options and the requirement for relevant viewpoints of the Cable Route Corridor Options will be considered as the design of the Proposed Development evolves.

6.8 CONSULTATION AND SCOPING QUESTIONS.

Consultation on the scope and approach to the LVIA will be conducted with the following consultees:

- Northumberland County Council;
- Northumberland National Park Authority; and
- Natural England.

Key questions for consultees are:

- Q6.1 - Are there any comments on the overall methodology proposed to assess effects on landscape and visual receptors, or to assess cumulative effects?
- Q6.2 – Are there any comments on the proposed Study Areas?
- Q6.3 - Are there any comments on the proposed list of assessment viewpoint locations?
- Q6.4 - Which viewpoints do you consider would be helpful to assess effects associated with aviation lighting?
- Q6.5 - Has the consultee identified any further landscape or visual receptors that could be considered within the assessment (i.e., where it is expected that likely significant effects may occur)?
- Q6.6 - Are there any other relevant consultees who should be consulted with respect to the LVIA?

7. CULTURAL HERITAGE AND ARCHAEOLOGY

7.1 INTRODUCTION

This chapter outlines the baseline environment, potential impacts, and the proposed methodology to be undertaken for the cultural heritage assessment that will be referred to within the ES. The assessment will be supported by appropriate figures and visualisations and will be prepared by a suitably qualified archaeologist with experience in the assessment of wind energy developments in the UK.

This chapter is supported by the following figures and appendices:

- Figure 7.1: Cultural Heritage Study Areas;
- Figure 7.2: Designated and Non-designated Assets within 1 km;
- Figure 7.3: Designated Assets within 5 km and ZTV;
- Figure 7.4: Designated Assets within 15 km and ZTV
- Appendix 7.1: Cultural Heritage and Archaeology Baseline; and
- Appendix 7.2: Cultural Heritage Gazetteer.

7.2 LEGISLATION, POLICY AND GUIDANCE

7.2.1 LEGISLATION

The assessment will be conducted with reference to the relevant statutory and planning frameworks for cultural heritage.

Key heritage legislation of relevance includes:

- Town and Country Planning Act (1990)[56];
- The Ancient Monuments and Archaeological Areas Act (1979)[57];
- The National Heritage Act (1983)[58];
- Listed Buildings and Conservation Areas Act (1990)[59];

[56] UK Government (1990) Town and Country Planning Act. Available online at: https://www.legislation.gov.uk/ukpga/1990/8/contents
[57] UK Government (1979) Ancient Monuments and Archaeological Areas Act. Available online at: www.legislation.gov.uk/ukpga/1979/46
[58] UK Government (1983) National Heritage Act. Available online at http://www.legislation.gov.uk/ukpga/1983/47
[59] UK Government (1997) (Listed Buildings and Conservation Areas) (Scotland) Act 1997. Available online at: http://www.legislation.gov.uk/ukpga/1979/46/pdfs/ukpga_19790046_en.pdf

- Enterprise and Regulatory Reform Act (2013)[60];
- Planning (Listed Buildings and Conservation Areas) Act (1990)[61];
- Hedgerow Regulations (1997)[62]; and
- The Planning Act (2008)[63].

7.2.2 NATIONAL PLANNING POLICY

7.2.2.1 NATIONAL POLICY STATEMENTS

The energy National Policy Statements (NPSs), EN-1 – EN-6, outline the government's policy for delivering major energy infrastructure. The NPSs that are of relevance to the Proposed Development are:

- the Overarching NPS for Energy (EN-1) (2025)[64];
- the NPS for renewable energy infrastructure (EN-3) (2025)[65]; and
- the NPS for electricity networks infrastructure (EN-5) (2025)[66].

Details of specific policies within EN-1 and EN-3 that are considered relevant to cultural heritage are set out in **Table 7.1** below. EN-5 contains no additional requirements with regard to cultural heritage.

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[60] UK Government (2013) Enterprise and Regulatory Reform Act 2013. Available online at https://www.legislation.gov.uk/ukpga/2013/24/schedule/17/enacted

[61] UK Government (1990). Planning (Listed Buildings and Conservation Areas) Act 1990. Available online at: https://www.legislation.gov.uk/ukpga/1990/9/contents

[62] UK Government (1997) The Hedgerows Regulations 1997, Part II. Criteria. Available online at: https://www.legislation.gov.uk/uksi/1997/1160/schedule/1/part/II/made

[63] UK Government, Planning Act (2008). Available online at: https://www.legislation.gov.uk/ukpga/2008/29

64 Department of Energy Security and Net Zero, 2025. Overarching National Policy Statement for Energy (EN-1). Available online at: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1

[65]Department of Energy Security and Net Zero, 2025. National Policy Statement for Renewable Energy Infrastructure (EN-3). Available online at: https://assets.publishing.service.gov.uk/media/65a7889996a5ec000d731aba/nps-renewable-energy-infrastructure-en3.pdf

[66] Department of Energy Security and Net Zero, 2025. National Policy Statement for Electricity Networks Infrastructure (EN-5). Available online at: National Policy Statement for Electricity Networks Infrastructure (EN-5) – December 2025

TABLE 7.1 NATIONAL PLANNING POLICY STATMENTS

NPS Reference	NPS Requirement
EN-1, paragraph 4.7.2	*EN-1, paragraph 4.7.2 states: "Applying "good design" to energy projects should produce sustainable infrastructure sensitive to place, including impacts on heritage, efficient in the use of natural resources, including land-use, and energy used in their construction and operation, matched by an appearance that demonstrates good aesthetic as far as possible. It is acknowledged, however that the nature of energy infrastructure development will often limit the extent to which it can contribute to the enhancement of the quality of the area."*
EN-1, paragraph 5.9.1	*"The construction, operation and decommissioning of energy infrastructure has the potential to result in adverse impacts on the historic environment above, at and below the surface of the ground."*
EN-1, paragraph *5.9.7-9*	*"There are heritage assets that are not currently designated, but which have been demonstrated to be of equivalent significance to designated heritage assets of the highest significance."* *"Non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to Scheduled Monuments or Protected Wreck Sites should be considered subject to the policies for designated heritage assets. The absence of designation for such heritage assets does not indicate lower significance."* *"The Secretary of State should also consider the impacts on other non-designated heritage assets (as identified either through the development plan*

NPS Reference	NPS Requirement
	making process by plan-making bodies, including 'local listing', or through the application, examination and decision-making process). This is on the basis of clear evidence that such heritage assets have a significance that merits consideration in that process, even though those assets are of lesser significance than designated heritage assets."
EN-1 paragraph 5.9.11-19	*"The applicant should undertake an assessment of any likely significant heritage impacts of the proposed development as part of the EIA and describe these in the ES (see **Section 4.3**). This should include consideration of heritage assets above, at, and below the surface of the ground. Consideration will also need to be given to the possible impacts, including cumulative, on the wider historic environment. The assessment should include reference to any historic landscape or seascape character assessment and associated studies as a means of assessing impacts relevant to the proposed project."* *"As part of the ES the applicant should provide a description of the significance of the heritage assets affected by the proposed development, including any contribution made by their setting. The level of detail* *should be proportionate to the importance of the heritage assets and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum, the applicant should have consulted the relevant Historic Environment Record (or, where the development is in English or Welsh waters, Historic England or Cadw) and assessed the heritage assets themselves using expertise where necessary*

NPS Reference	NPS Requirement
	according to the proposed development's impact." *"Where a site on which development is proposed includes, or the available evidence suggests it has the potential to include, heritage assets with an archaeological interest, the applicant should carry out appropriate desk- based assessment and, where such desk-based research is insufficient to properly assess the interest, a field evaluation. Where proposed development will affect the setting of a heritage asset, accurate representative visualisations may be necessary to* *explain the impact."* *"The applicant should ensure that the extent of the impact of the proposed development on the significance of any heritage assets affected can be adequately understood from the application and supporting documents. Studies will be required on those heritage assets affected by noise, vibration, light and indirect impacts, the extent and detail of these studies will be proportionate to the significance of the heritage asset affected."* *"The applicant is encouraged, where opportunities exist, to prepare proposals which can make a positive contribution to the historic environment, and to consider how their scheme takes account of the significance of heritage assets affected. This can include, where possible: enhancing, through a range of measures such a sensitive design, the significance of heritage assets or setting affected considering where required the development of archive capacity which could deliver significant public benefits considering how visual or noise impacts can affect heritage assets, and whether there may be opportunities to enhance*

NPS Reference	NPS Requirement
	access to, or interpretation, understanding and appreciation of, the heritage assets affected by the scheme" *"Careful consideration in preparing the scheme will be required on whether the impacts on the historic environment will be direct or indirect, temporary, or permanent."* *"Applicants should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage assets, to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to the asset (or which better reveal its significance) should be treated favourably."*
EN-3 paragraph 2.12.91	"*Applicants should consider what steps can be taken to ensure heritage assets are conserved in a manner appropriate to their significance, including the impact of proposals including their setting*."
EN-3 paragraph 2.12.91-2.12.92	"*Applicants should consider what steps can be taken to ensure heritage assets are conserved in a manner appropriate to their significance, including the impact of proposals including their setting*." "*As the significance of a heritage asset derives not only from its physical presence but also from its setting, careful consideration should be given to the impact of onshore wind farms which depending on their scale, design, and prominence may have implications for the significance of the asset. This should also include the cumulative impacts of multiple developments*."

NPS Reference	NPS Requirement
EN-3 paragraph 2.12.155	"*Onshore wind farms are generally consented on the basis that they will be time-limited in operation. The SoS should therefore consider the length of time for which consent is sought when considering the impacts of any effect on the historic environment, such as effects on the significance of designated heritage assets*."

7.2.2.2 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

National Planning Policy Framework (NPPF) [67], revised in December 2024 and updated in 2025, sets out the Government's planning policies for England, and how they are expected to be applied.

Paragraphs 212 to 221 of the NPPF introduce the concept that heritage assets can be harmed or lost through alteration, destruction or development within their setting and identify that this harm ranges from less than substantial through to substantial.

Paragraph 214 has a direction to refuse consent where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset *"unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:*

1. the nature of the heritage asset prevents all reasonable uses of the site; and

2. no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and

3. conservation by grant-funding or some form of not for profit, charitable or public ownership is demonstrably not possible; and

4. the harm or loss is outweighed by the benefit of bringing the site back into use."

Paragraph 215 relates to instances of 'less than substantial harm' to designated assets, and states that:

"Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal including, where appropriate, securing its optimum viable use."

Paragraph 216 relates to non-designated heritage assets, and states that:

"The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that directly or indirectly affect non-designated heritage assets, a

[67] Ministry of Housing, Communities & Local Government. (2024), National Planning Policy Framework. Available online at: https://assets.publishing.service.gov.uk/media/67aafe8f3b41f783cca46251/NPPF_December_2024.pdf

balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset."

7.2.3 LOCAL POLICY

The following is a summary of the key local heritage policy:

Northumberland Local Plan 2016-2036 (2022)[68], key policies:

- Policy ENV 7 Historic environment and heritage assets;
- Policy ENV 8 Frontiers of the Roman Empire - Hadrian's Wall World Heritage Site; and
- Policy ENV 9 Conservation Areas.

Northumberland National Park Authority Local Plan (2020)[69]; key policies include:

- Policy DM 14 Historic Landscape Assets And Built Heritage; and
- Policy DM 15 Archaeological Heritage.

Northumberland National Park Authority Management Plan (2022)[70]

7.2.4 GUIDANCE

In addition to legislation and local policy, the following is a summary of the key heritage guidance:

- Northumberland Local Plan Statement of Community Involvement (2015)[71];

[68] Northumberland Council (2022) Local Plan 2016-2036. Available online at: https://www.northumberland.gov.uk/planning-and-building/planning-policy/northumberland-local-plan-2016-2036

[69] Northumberland National Park (2020) Local Plan. Available online at: https://www.northumberlandnationalpark.org.uk/wp-content/uploads/2020/09/Northumberland-National-Park-Local-Plan-July-2020-.pdf

[70] Northumberland National Park (2022) Northumberland National Park Management Plan. Available online at: https://www.northumberlandnationalpark.org.uk/wp-content/uploads/2023/07/Management-Plan-2022.pdf

[71] Northumberland Council (2015) Northumberland Local Plan Statement of Community Involvement, Available online at: https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Planning-and-Building/Statement-of-Community-Involvement-Adopted-February-2015.pdf

- Hadrian's Wall World Heritage Site Management Plan[72];
- Historic England: Commercial Renewable Energy Development and the Historic Environment (2021)[73];
- Historic England: Conservation Principles (2008)[74];
- Historic England: Historic Environment Good Practice Advice in Planning: 2; Managing Significance in Decision-Taking in the Historic Environment (2015)[75]; and
- Historic England: The Setting of Heritage Assets (2017)[76].

Further information on Legislation, Policy and Guidance can be found in **Appendix C: Cultural Heritage and Archaeology Baseline.**

7.3 BASELINE CONDITIONS AND KEY SENSITIVITIES

A review of the available Historic England (NHLE) and Historic Environment Records (HER) datasets which records heritage assets across England, as well as review of secondary sources such as historic mapping and LiDAR analysis, provides evidence of an upland landscape with Early to Late Prehistoric settlement, subsistence, and ritual and funerary monuments, evidence for Roman frontier and military presence, and later Medieval to Post-medieval agriculture and farming.

[72] Hadrian's Wall Country, Hadrian's Wall World Heritage Site Management Plan. Available online at: https://hadrianswallcountry.co.uk/management-plans/
[73] Historic England (2021) Commercial Renewable Energy Development and the Historic Environment. Historic England Advice Note 15. Available online at: https://historicengland.org.uk/images-books/publications/commercial-renewable-energy-development-historic-environment-advice-note-15/
[74] Historic England (2008) Conservation Principles, Policies and Guidance. Available online at: https://historicengland.org.uk/images-books/publications/conservation-principles-sustainable-management-historic-environment/
[75] Historic England (2015) Managing Significance in Decision-Taking in the Historic Environment: Historic Environment Good Practice Advice in Planning 2, Paragraph 11. Available online at: https://historicengland.org.uk/images-books/publications/gpa2-managing-significance-in-decision-taking/
[76] Historic England (2017) The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3 (Second Edition) Available online at: https://historicengland.org.uk/images-books/publications/gpa3-setting-of-heritage-assets/

Initial information relating to archaeology and cultural heritage has been gathered through a review of HER and available online resources to indicate potential heritage features of interest, as presented below.

7.3.1 DATA SOURCES

The following key data sources will be used in the cultural heritage assessment:

- NHLE for information on World Heritage Sites (WHS), Scheduled Monuments (SM), Listed Buildings (LB), Registered Historic Parks and Gardens (RPG), Protected Wrecks and Historic Battlefields[77];
- Northumberland HER[78];
- British Geological Survey BGS Index[79];
- National Library of Scotland Maps[80];
- Publicly accessible published sources and grey literature (e.g., results from previous studies);
- Relevant academic papers and thesis;
- Regional historic environment research frameworks;
- Unpublished site reports and survey results held by local heritage groups;
- Relevant published and grey literature historic environment reports;
- the Environment Agency's library of open access LiDAR data (Digital Terrain Model (DTM) and Digital Surface Module (DSM)); and
- the results of the Site visit.

7.3.1.1 SITE VISIT

A site walkover across the Site was conducted between the 20th and 21st May 2025. The conclusions of the walkover are discussed in detail in **Appendix C: Cultural Heritage and Archaeology Baseline**.

[77] Historic England (2025) Search the List [Online] Available online at: https://historicengland.org.uk/listing/the-list/
[78] Northumberland Historic Environment Record, Keys to the Past. Available online at: https://keystothepast.info/
[79] British Geological Survey (2024) Geoindex [Online] Available online at: https://www.bgs.ac.uk/map-viewers/geoindex-onshore/
[80] National Library of Scotland (2024) Map Images [Online] Available online at: https://maps.nls.uk/

7.3.1.2 LIDAR DATA

DTM LiDAR data, at 1m resolution, was processed using ArcGIS software. Multiple hillshade and shaded-relief models were created, principally via adjustment of the following variables: azimuth, height, and 'z-factor' or exaggeration. The models created were then colourised using pre-defined ramps and classified attribute data, to reveal the micro-topography and allow for analysis.

7.3.2 PROPOSED CULTURAL HERITAGE STUDY AREAS

To assess potential Direct/Indirect Physical Impacts and Setting Impacts on the historic environment, three Study Areas around the Site have been established:

- 1 km Study Area;
- 5 km Study Area; and
- 15 km Study Area.

These Study Areas have been established based on best practice following a contextual review of the Site, a consideration of potential impacts and the historical and archaeological baseline. The Cable Corridor Options Study Areas are addressed within **Section 7.3.7.**

7.3.2.1 1 KM STUDY AREA

The 1 km Study Area (**Figure 7.1: Cultural Heritage Study Areas**) will be used to inform the heritage baseline, against which, potential direct impacts and effects to known and currently unknown heritage assets will be assessed. This Study Area takes in the Site itself and the land within a 1 km radius of the Site.

7.3.2.2 5 KM STUDY AREA

The 5 km Study Area (**Figure 7.1: Cultural Heritage Study Areas**) will take in the Site and land up to 5 km distant from the Site. The Study Area will be used to identify Setting effects to designated assets as well as selected non-designated assets identified through consultation with the Local Planning Authorities (LPAs) surrounding the Site.

7.3.2.3 15 KM STUDY AREA

The 15 km Study Area will take in the Site and land up to 15 km distance from the Site. The Study Area will be used to identify Setting effects to designated

assets as well as selected non-designated assets identified through consultation with the LPAs surrounding the Site.

The 15 km Study Area will not be used as an arbitrary cut-off point for assessing these impacts. Due consideration will be given to heritage receptors beyond 15 km that fall within the bare earth ZTV of the Proposed Development or are identified as deriving significance as a result of long-distance viewscapes, as well as heritage receptors specifically identified for inclusion within any cumulative assessment by Historic England (HE) and the LPAs. As part of the assessment of effects to setting, a sieving exercise will be undertaken to determine which heritage assets will be referred to within the detailed Setting Assessment.

A table listing assets for inclusion within, or exclusion from, the assessment of effects to Setting will be provided to stakeholders along with a rationale for any decisions made. A detailed assessment of effects to Setting will form a standalone Technical Appendix to the Archaeology and Cultural Heritage ES Chapter.

The 15 km Study Area will also serve as the initial extent of any assessment of Cumulative Impacts.

Any other assets located beyond these search areas but that are considered, through professional judgement, relevant to establishing the Site's historic landscape context or that are identified as potentially susceptible to impact, will also be considered.

To assess potential Direct/Indirect Physical Impacts and Setting Impacts on the historic environment, two Study Areas around the Cable Corridor Options have been established:

- 500 m for assessment of Direct/Indirect Physical Impacts; and
- 10 km for assessment of Setting Impacts.

The Cable Corridor Options Study Areas differ from those for the wind farm as the grid route is linear infrastructure for which a limit of deviation of 500 m is considered to be more appropriate in line with the scale of the Cable Corridor Options and potential route alignment amendments within them. The Study Area for the Setting Impacts for the Cable Corridor Options is 10 km based upon relative heights.

These Study Areas assume use of OHL, should UGC be used, they may be re-calculated based on confines of infrastructure.

7.3.3 TEMPORAL SCOPE

7.3.3.1 CONSTRUCTION

The Construction phase of the Proposed Development may cause the following impacts upon cultural heritage assets:

- Direct physical impact resulting from ground disturbance during construction phase causing potential loss of whole or part of a heritage asset;
- Indirect physical impact resulting from construction and associated activity; and
- Impact upon the setting of cultural heritage assets during the construction phase of the Proposed Development. Changes to setting during the construction phase would typically be short lived, lasting only a matter of days, weeks or months.

7.3.3.2 OPERATION

The Operational phase of the Proposed Development may cause the following impacts upon cultural heritage assets within the Study Areas:

- Impacts can result from vibration associated with Site infrastructure or through maintenance activities should works extend beyond the original footprint of construction. Impacts would typically be of a much lower magnitude of scale than during construction. However, the effects would likely be permanent and irreversible. This would only typically impact assets within the Site itself; and
- Impact upon the setting of cultural heritage assets within the Study Areas. This includes visual and noise intrusions or changes to the wider historic landscape that may detract value from cultural heritage assets. Impacts to setting would last for the lifetime of the Proposed Development, but would typically be fully reversible, following the removal of all above ground infrastructure.

7.3.4 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

This section provides a period-by-period overview of the historical development of the 1 km Study Area and focuses on the known heritage assets within the Site. Further information on the background of the Site is referred to in **Appendix C: Cultural Heritage and Archaeology Baseline** and can be seen in **Figures 7.1 - 7.4**.

7.3.4.1 THE SITE

The Proposed Development is located within an area of upland near Raylees, Northumberland on land adjacent to the existing Ray Wind Farm. This area is predominantly rough pasture and moorland with an underlying geology of Tyne Limestone Formation and Alston Formation overlain by superficial deposits of Till and localised peat[81]. A full background for the Proposed Development can be found in **Appendix C: Cultural Heritage and Archaeology Baseline**.

7.3.4.2 KNOWN CULTURAL HERITAGE ASSETS WITHIN 1 KM

Within the 1 km Study Area, there are 13 designated assets; seven Scheduled Monuments, and six grade II Listed Buildings. Of the designated assets, six are located within the Site.

Additionally, there are 316 non-designated assets located within 1 km, 79 of which are located within the Site.

No Battlefields, Registered Parks and Gardens or Protected Wrecks were identified within the 1 km Study Area. The locations of assets within 1 km are shown in **Figure 7.2: Non-Designated Assets within 1 km** and **Figure 7.3: Designated Assets within 5km**. Prehistoric, Roman, Medieval, and post-medieval to modern assets that fall within the 1 km Study Areas are summarised below.

7.3.4.3 PREHISTORIC

Within the 1 km Study Area, the following designated assets date to the Prehistoric period, inclusive of Neolithic, Bronze Age and Iron Age:

- Neolithic, Cup and ring marked rock on Tod Crag (SM1013542), located within the Site, approximately 330m northwest of proposed Turbine 1;
- Likely Bronze Age, Ant Hills (burial mounds) (SM1006608), located within the Site, approximately 350 m northwest of proposed Turbine 9;
- Multivallate hillfort, 420m SSW of Catcherside (SM1011100) located within 1 km; and
- Birky Burn settlement (SM1006485) located within 1 km.

An additional 39 non-designated assets within the 1 km Study Area date to the Prehistoric period comprising domestic and defensive settlement sites, and

[81] British Geological Survey GeoIndex Onshore Viewer. Available online at: GeoIndex - British Geological Survey (bgs.ac.uk).

funerary monuments. Of these, the following eight assets are located within the Site.

- Iron Age Low Rounded Hill (HER 9407) located 160 m east of proposed Turbine 10 and under an access track;
- Possible Neolithic Cup Marked Rock and Cairn (HER 28088) located 5 m west of an access track;
- Later prehistoric settlement at Hallshill Farm (HER 9376) located 180 m north of proposed Turbine 6;
- Later prehistoric, Wolf Crag field banks (HER 9467) located 300 m southwest of proposed Turbine 8;
- Bronze Age Clearance Cairn (HER 9436) located 325 m north of proposed Turbine 11;
- Whaup Knowe Bronze Age Cairnfield (south) (HER 9435) located 337 m north of proposed Turbine 11;
- Hare Cairn, Bronze Age cairn (HER 9377) located 360 m northeast of proposed Turbine 12; and
- Whaup Knowe Bronze Age Cairnfield (north) (HER 9435) located 380 m north of proposed Turbine 11.

Prehistoric assets are dispersed throughout the landscape with settlement patterns following watercourses and clustered around higher areas of ground. Evidence of Prehistoric settlement and activity, although present within the 1 km Study Area has been largely disturbed by Post-medieval – modern activity such as farming, forestry, quarrying and mining. Further detailed information on Prehistoric assets within the 1 km Study Area can be found in **Appendix C: Cultural Heritage and Archaeology Baseline**.

7.3.4.4 ROMAN

Within the 1 km Study Area, the following designated assets date to the Roman period:

- Romano-British farmstead, 650m ENE of Wolf Crag (SM1011114), located within the Site, approximately 570 m east of proposed Turbine 8; and
- Prehistoric settlement, funerary and agricultural remains, 650m south of South Monkridge Bridge (SM1006467), located within 1 km.

An additional eight non-designated assets within the 1 km Study Area date to the Iron Age- Roman and Roman periods comprising domestic and defensive

settlement sites, and funerary monuments as well as military camps. Of these, the following asset is located within the Site:

- Fairnley Romano-British settlement (HER 9476) located 50 m north of an access track.

7.3.4.5 MEDIEVAL

There are no designated assets within the Site that date to the Medieval period.

Within the 1 km Study Area, the following designated asset dates to the Medieval period:

- Steng medieval wayside cross (SM1008283).

An additional 17 non-designated assets within the 1 km Study Area date to the Medieval period comprising predominantly agricultural features such as ridge and furrow and stock enclosures as well as deserted Medieval villages. Of these, the following six assets are located within the Site:

- Possibly Medieval circular platform (HER 9437), located approximately 180 m to the south of proposed Turbine 8 and 57 m from an access track;
- Remains of a Medieval stock enclosure (HER 9430), located approximately 680 m to the east of proposed Turbine 11; and
- Possibly Medieval Ridge and Furrow (LiDAR 1, 2, 3 and 4) distributed across the middle – north of the Site.

Medieval assets are predominantly located within areas of modern agriculture such as farmsteads and is indicative of historic agricultural use of the Site and surrounding area. Further detailed information on Medieval assets within the 1 km Study Area can be found in **Appendix C: Cultural Heritage and Archaeology Baseline**.

7.3.4.6 POST-MEDIEVAL – MODERN

Within the 1 km Study Area, the following designated assets date to the Post-Medieval - Modern period:

- Winter's Gibbet (LB1041241) located within the northern border of Site;
- Milestone Circa 400 Yards North West of Ottercops Road End (LB1041270) located within the Site, along the A696;
- Milestone Circa 1000 Yards South of Blaxter Cottages (LB1371456) located within the Site along the A696;
- Bastle Houses at Ottercops Farm (LB1371455) located within 1 km;

- Catcherside Cottage (LB1044910) located within 1 km; and
- East Woodburn Bridge (LB1471162) located within 1 km.

An additional 112 non-designated assets within the 1 km Study Area date to the Post-Medieval-Modern period comprising predominantly agricultural and industrial assets. These include farmsteads and agricultural assets, quarries, mines, WWII assets (such as Chain Home Radar Station, pillboxes and mileposts) and clearance cairns. Of these, 32 assets are located within the Site comprising:

- 15 structures relating to agriculture and farming (HER 9415, 9438, 9439, 9443, 9444, 9457, 9458, 21983, 21996, 21998, 21999, 22012, 22015, 27848, 24403);
- 13 structures associated with Ottercops chain home radar station (HER 9403, 9404, 9405, 26956, 26957, 26958, 26959, 26960, 26961, 26962, 26963, 26964, 26965); and
    - 4 remains of post-medieval buildings (HER 9392, 9445, 9469, 9490).

Post-Medieval assets are widely dispersed throughout the landscape and evidences the wide spread use of the area from the Post-Medieval period onward. Further detailed information on Post-Medieval – Modern assets within the 1 km Study Area can be found **in Appendix C: Cultural Heritage and Archaeology Baseline**.

7.3.4.7 UNKNOWN

140 assets within 1 km have been assigned an 'unknown' date. These comprise predominantly of post-medieval assets that have been truncated or disturbed to a degree that a date cannot be ascribed (such as sheepfolds and earthworks) however, others such as cairns or hollow ways may be much older in date. 31 assets of unknown date are located within the Site comprising:

- Seven structures relating to agriculture and farming (Walkover 3, HER 36784, 9387, 36355, 36439, 36440, 36846);
- 11 undated cairns (Walkover 1, 2, 4, 5, 6, 7, Map 1, 2, 3, 4, HER 9389);
- A footbridge (HER 36786);
- A quarry (HER 36354);
- A rifle range (HER 36356); and
- Ten assets of undetermined function (HER 35563, 35352, 36792, 9393, 9397, 9464 9465, 9468, 36847, 36492).

7.3.5 KNOWN CULTURAL HERITAGE ASSETS WITHIN 5 KM

Within the 5 km Study Area there are a further 165 designated assets; 36 Scheduled Monuments and 126 Listed Buildings (two Grade I (Church of St Cuthbert, LB1155072 and Elsdon Tower, LB1371439) four Grade II* and 120 Grade II), one Battlefield (Battle of Otterburn, BTL100029), two Registered Parks and Gardens (Wallington, RPG1001054 and Kirkharle Hall, RPG1001049) and two Conservation Areas (Cambo, CA3969 and Kirkwhelpington, CA9178). No Protected Wrecks were identified within the 5 km Study Area. **Figure 7.3: Designated Assets within 5km** shows the location of identified designated assets within the 5 km Study Area.

7.3.6 KNOWN CULTURAL HERITAGE ASSETS WITHIN 15 KM

Within the 15 km Study Area there are a further 929 designated assets; one World Heritage Site (Hadrian's Wall, WHS 1000098), 198 Scheduled Monuments, 723 Listed Buildings (of which, 24 Grade I), four Registered Parks and Gardens and seven Conservation Areas. No Battlefields, or Protected Wrecks were identified within the 15 km Study Area. **Figure 7.4 Designated Assets within 15 km and ZTV** shows the location of identified designated assets within the 15 km Study Area.

A map regression exercise was also undertaken, reviewing available online historic mapping, including the 1st Edition OS mapping[82] within the National Library of Scotland to reveal how land use and settlement has changed around the Site, which could indicate the potential for buried archaeology.

On the OS Six Inch map (1830s-1880s, published 1866 AD), the Site is shown as a mixture of rough pasture and localised agriculture. Farmsteads and areas of agriculture within the Site are within the same areas depicted on modern aerial imaging and within the HER with the main farmstead within Site being Ottercops farm. An additional, now disused farmstead at Birky Burn (HER 9471) is also identified on this map, located approximately 2 km to the northeast of Ottercops farm.

The OS Six Inch map depicts some areas of deliberate tree planting to the east of the Site, identified as Fairnley and Catcherside North plantation. Additionally, the OS Six Inch map depicts some small areas of scattered plantation woodland, dating to the late 19th century, most notably in the area surrounding Ottercops farm. However, the large area of plantation woodland

[82] National Library of Scotland (2023). Maps: Ayrshire, Sheet VI, VII, XI. Available online at: https://maps.nls.uk/

visible on aerial imaging is modern. Modern plantation woodland is limited to the south-western extent of the Site around Black Burn.

Further information can be found in **Appendix C: Cultural Heritage and Archaeology Baseline**. This map regression exercise will be expanded into the surrounding area as part of the ES, and the results will be referred to in the ES Report.

7.3.7 CABLE CORRIDOR OPTIONS

The three Cable Corridor Options are located within a sensitive heritage landscape, characterised by human settlement ranging from prehistory to the modern period.

The Cable Corridor Options extend from the Proposed Development, south, across an agrarian landscape directly north of the Hadrian's Wall (Frontiers of the Roman Empire: WHS Dossier 430ter)[83], before crossing the WHS boundary to connect to a substation west of Wall. Key to understanding landscape is the chronological use from: upland-lowland and mobile prehistoric presence, through the Roman barrier frontier wherein a complex network of features support the Wall itself, serving to illuminate the constructs of military planning and control; prior to abandonment and reuse, and the development of the area through to the modern era.

Concentrations of built remains along routeways such as the modern A68 (formerly Roman Road: Dere Street), as well as within the palimpsest taskscape of the Tyne River (and associated tributaries), indicate the temporal depth in the more open agri-landscape. While further landscape evolution concerns the increased urbanisation and development of medieval / post-medieval emergent, planned and designed settlements and discrete landscapes.

All Cable Corridor Options (alongside the Proposed Ray II Windfarm) would require the *Frontiers of the Roman Empire: Hadrian's Wall* WHS, to be assessed using the WHS toolkit[84] as a guide, as they pass through Hadrian's Wall. This process will involve the agreement of an appropriate assessment

83 UNESCO, Frontiers of the Roman Empire. Available online at: Frontiers of the Roman Empire - UNESCO World Heritage Centre

84 UNESCO. 2022. *Guidance and Toolkits for Impact Assessment*. Available online at: World Heritage Centre - Guidance and Toolkit for Impact Assessments in a World Heritage Context

approach developed in consultation with HE and potentially UNESCO (or ICOMOS).

7.4 POTENTIAL IMPACTS AND LIKELY SIGNIFICANT EFFECTS

The Cultural Heritage and Archaeology assessment for the ES will consider the potential for likely significant effects on cultural heritage and archaeology receptors from the Proposed Development. Consideration will be given to:

- Direct physical impacts as a result of ground disturbance within the Site during the construction phase of the Proposed Development;
- Indirect physical impacts on identified heritage assets recorded within the 1 km Study Area during construction; and
- Setting impacts at heritage assets within the 15 km Study Area once the Proposed Development is operational.

7.4.1 DIRECT AND INDIRECT PHYSICAL IMPACT

Direct and/or indirect physical impacts would not be anticipated to occur wholesale across the full extent of the Site but are expected to be limited to areas of ground disturbance associated with construction and/or landscaping. As such, the occurrence of these types of impacts is typically limited to the construction phase of any development.

Direct physical impacts are physical alterations, e.g. truncation, removal, structural damage etc., which may affect either known or potential or unrecorded assets, both buried and above ground. These impacts are usually permanent and irreversible.

Indirect physical impacts are physical alterations occurring as a result of construction and associated activity, but not from direct physical contact between plant machinery and other forms of construction personnel or equipment. Instead they result from, for example, vibration caused by the movement of plant machinery, delivery vehicles etc., harmful desiccation or saturation of assets due to changes in groundwater level as a result of groundworks elsewhere, and other remote construction activities.

There are 85 known heritage assets within the Site Boundary (comprising both designated and non-designated assets). No direct/indirect physical impact to any designated assets within the Site is anticipated as a result of the Proposed Development as presented at this stage.

Anticipated impact to non-designated heritage assets as a result of the Proposed Development is discussed below in **Table 7.2**.

TABLE 7.2 ASSETS AT RISK OF DIRECT/INDIRECT PHYSICAL IMPACT

Asset	Anticipated Impact	Project element interaction	Rationale
Pillbox south of Ottercops Moss radar station (HER 26964).	Direct	Temporary Construction Compound.	Located within the proposed footprint for the construction compound, direct impact to the structure is anticipated in the absence of mitigation.
Earthwork remains of a probable Iron Age field system (HER 9407).	Direct	Proposed Access Tracks.	Access track clips the northern extent of the field system direct impact to the asset is anticipated in the absence of mitigation. There is also an increased potential for unknown buried archaeology to be identified in this area.
Ridge and Furrow (LiDAR 2 and LiDAR 3).	Direct	Proposed Access Tracks.	Ridge and furrow identified via LiDAR analysis; there is an increased potential for unknown buried archaeology to be identified in these areas.
Unknown buried archaeology.	Direct	Areas of intrusive ground working.	Direct impact to unknown, buried archaeology is possible within the Site in areas of intrusive ground working.

Additionally, six non-designated assets are located within 10 m of project infrastructure (inclusive of turbine and hardstanding locations, access tracks, construction compound and BESS). Although not directly impacted, these may also require mitigation to avoid accidental direct impact during the construction phase. These assets are provided in detail in **Appendix C: Cultural Heritage**

Baseline and can be seen on **Figure 7.2: Non-designated Assets within 1 km** and **Figure 7.3: Designated Assets within 5km**.

7.4.2 EFFECTS TO SETTING

Changes to setting may occur during the Construction Phase but are typically considered to peak during the Operational Phase of a Proposed Development, with the Proposed Development having maximum visual and experiential impact following the installation of all above ground infrastructure.

In relation to the Proposed Development and above ground infrastructure, there is a potential for effects to setting to occur in relation to both designated and significant non-designated heritage assets located within the 15 km Setting Study Area and within the wider historic landscape, where an asset is sensitive to change to long distance views.

A list of all designated assets within the 15 km Study Area can be found in **Appendix C: Cultural Heritage Gazetteer** and can be seen in **Figure 7.4 Designated Assets within 15 km and ZTV**. A full assessment of effects to setting will be undertaken in the ES, supported by a sieving exercise. The sieving exercise aims to sieve out assets from assessment based on their value and sensitivity to changes in setting.

At this stage, 41 designated assets, are considered to be at risk of adverse changes in setting as a result of the Proposed Development. These include:

- 17 Scheduled Monuments;
- 18 Listed Buildings (5 Grade I, 1 Grade II* and 12 Grade II);
- One Conservation Area;
- Three Registered Parks and Gardens;
- One Battlefield; and
- One World Heritage Site.

The final number of assets considered for assessment relating to changes in setting will be determined following consultation with HE and Northumberland County Council and presented within the ES. A detailed assessment of effects to setting will be undertaken in the forthcoming EIA and will include conclusions on all anticipated likely significant effects.

7.4.3 CUMULATIVE IMPACTS

Cumulative Effects typically occur during the construction and operational phases of a project. There is the potential for cumulative impacts as a result of Direct and Indirect / Setting Impact interactions with other projects.

A list of projects which may generate cumulative impacts to heritage assets will be supplied to and agreed with HE, and Northumberland County Council during the production of the Archaeology and Cultural Heritage ES Chapter. A list of known other wind farm projects within a 45km radius is included in **Chapter 3: EIA Process** of this Report.

7.5 ASSESSMENT METHODOLOGY

7.5.1 ASSESSMENT OF HERITAGE SIGNIFICANCE

Heritage assets will be assessed in terms of their significance, following the requirement in EN-1 section 5.9.10, and taking account of Historic England's guidance on 'Managing Significance in Decision-Taking in the Historic Environment' (GPA2)[85].

Significance, in relation to heritage policy, is defined in the NPPF as *"the value of a heritage asset to this and future generations because of its heritage interest. That interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting."*

The NPPF glossary and the PPG provide that an asset's significance derives from its heritage 'interests', which the latter defines as follows:

- Archaeological interest: *"As defined in the Glossary to the National Planning Policy Framework, there will be archaeological interest in a heritage asset if it holds, or potentially holds, evidence of past human activity worthy of expert investigation at some point".*
- Architectural and artistic interest: *"These are interests in the design and general aesthetics of a place. They can arise from conscious design or fortuitously from the way the heritage asset has evolved. More specifically, architectural interest is an interest in the art or science of the design, construction, craftsmanship and decoration of buildings and structures of all types. Artistic interest is an interest in other human creative skills, like sculpture."*
- Historic interest: *"An interest in past lives and events (including pre-historic). Heritage assets can illustrate or be associated with them. Heritage*

[85] Historic England (2015) Managing Significance in Decision-Taking in the Historic Environment. Available online at: https://historicengland.org.uk/images-books/publications/gpa2-managing-significance-in-decision-taking/gpa2/

assets with historic interest not only provide a material record of our nation's history but can also provide meaning for communities derived from their collective experience of a place and can symbolise wider values such as faith and cultural identity."

Historic England's 'Statements of Heritage Significance: Analysing Significance in Heritage Assets', Historic England Advice Note 12 (2019)[86], also promotes the use of this terminology and methodology. This approach allows for a detailed and justifiable determination of heritage significance and the interests from which that significance derives.

In accordance with EN-1, the level of significance attributed to heritage assets will be articulated as follows:

- Designated heritage assets of the highest significance, as identified in section 5.9.30 of EN-1, comprising Grade I and II* Listed buildings, Grade I and II* Registered Parks and Gardens, Scheduled Monuments, Protected Wreck Sites, World Heritage Sites and Registered Battlefields (and also including some Conservation Areas) and non-designated heritage assets of archaeological interest which are demonstrably of equivalent significance to Scheduled Monuments, as identified in section 5.9.6 of EN-1 (2025);
- Designated heritage assets of less than the highest significance, as identified in section 5.9.30 of EN-1, comprising Grade II Listed buildings and Grade II Registered Parks and Gardens (and also some Conservation Areas); and
- Non-designated heritage assets, as defined within the PPG as "*buildings, monuments, sites, places, areas or landscapes identified by plan-making bodies as having a degree of significance meriting consideration in planning decisions, but which do not meet the criteria for designated heritage assets*".

7.5.2 MAGNITUDE OF IMPACT

Magnitude of impact is the predicted degree of change to the existing baseline environment during and / or following the construction of the Proposed Development. The methodology for predicting the degree of change that will be

[86] Historic England (2019) Statements of Heritage Significance: Analysing Significance in Heritage Assets. Available online at: https://historicengland.org.uk/images-books/publications/statements-heritage-significance-advice-note-12/heag279-statements-heritage-significance/

employed in this assessment moves away from the more traditional 'scalar', matrix-led approach. It instead adopts a descriptive, qualitative presentation of the changes to heritage significance that are predicted as a result of the Proposed Development, which directly reflects key concepts in current planning policy and heritage guidance and allows for a less constrained assessment of effects.

7.5.3 SETTING ASSESSMENT

Harm to the significance of any heritage assets as a result of change to setting will be undertaken in accordance with HE's 'The Setting of Heritage Assets' (2017)[87], which comprises the key industry guidance on heritage setting assessment.

To aid in the assessment of any setting impacts, reference will be made to the extent of the potential visual changes in setting as determined through the use of a bare earth ZTV and Landscape and Visual Impact Assessment (LVIA) viewpoints.

A sieving exercise will also be used to determine which heritage assets are to be referred to within the final setting assessment. For inclusion, assets will need to meet the following criteria:

- They must share intervisibility or a material non-visual association with the Proposed Development;
- They must derive part of their significance from their setting, as per the relevant policy and guidance; and
- Their location within the ZTV will be used to determine inclusion within assessment.

7.5.4 ASSOCIATED TRANSMISSION INFRASTRUCTURE

The Proposed Development comprises the construction of an onshore windfarm comprising up to 20 turbines with up to 230 m tip height, and associated infrastructure including cabling connecting the Site to the substation at Fourstones. At the Scoping stage, three Cable Corridor Options have been considered following initial route optioneering. A preferred grid connection route(s) to Site will be identified and considered as part of the Proposed Development and assessed in parallel during the EIA.

[87] Historic England (2017) The Setting of Heritage Assets. Available online at: https://historicengland.org.uk/images-books/publications/gpa3-setting-of-heritage-assets/heag180-gpa3-setting-heritage-assets/

The assessment of associated grid infrastructure will be assessed in line with the methodological approach taken for the Site with appropriate amendments to reflect the character of the grid infrastructure. Additional design considerations will be integrated into the assessment, where the approach to the grid infrastructure technology is determined to be OHL, UGC or Horizontal Directional Drilling (HDD).

7.5.5 SIGNIFICANCE OF EFFECTS

The process of carefully describing the level of heritage significance of each asset that may be affected by the Proposed Development and the interests from which that significance derives, combined with a prediction of the degree of change (magnitude) to this significance following the Proposed Development, will allow for an assessment of the overall effect of the Proposed Development upon the asset in question. In each case professional judgement will be employed to determine the likely significance of the effect. In reference to the EIA regulations, where the Proposed Development is predicted to result in a substantial erosion of the significance of a heritage asset, this may be described as a significant effect.

7.5.6 LIMITATIONS AND UNCERTAINTIES

Limitations that will apply to the assessment in the ES, which are typical for this type of assessment, comprise the following:

- Desk-based research relies on baseline data from third-party sources. More often than not these sources are entirely reliable, yet there are inevitable gaps in their geographical coverage; and
- Although below ground impacts can be predicted, there is always potential for encountering previously unknown and unexpected remains.

7.6 MITIGATION

7.6.1 DIRECT PHYSICAL EFFECTS

Known archaeology, as identified within the Archaeological and Historical Baseline, will be avoided during design of the Proposed Development, where practicable, within the limits of other on-Site constraints. The assessment of Direct Impacts and Effects will consider the proximity of known heritage assets to areas of proposed ground disturbance, as well as the potential for groundworks to disturb previously unknown heritage assets.

Where it is not practicable to avoid impacts through amending the layout and design of the Proposed Development, consultation will be undertaken with appropriate stakeholders to formulate a suitable mitigation strategy. Any mitigation strategy would aim to reduce the magnitude of effect experienced by the heritage asset.

Mitigation may include archaeological excavation, watching brief, historic building recording, historic landscape recording, in advance of or during construction and the dissemination of the results of these works.

Specific mitigation measures that may be implemented, if / where appropriate, include:

- Further desk-based research to construct a robust historic environment baseline;
- Input into design process to maximise the avoidance of known features;
- The development of a written schemes of investigation (WSI) for archaeological mitigation works;
- The development of a cultural heritage management plan (CHMP), to include a chance finds procedure, as necessary to support works; and
- Pre-commencement archaeological investigation (that may include: site setting assessment and development of visualisations, non-invasive and invasive survey and excavation work) to support the impact assessment and offset the effects of the Proposed Development.

Should significant buried archaeological remains be identified through the mitigation measures outlined above, pre-construction excavation may be required. All proposed mitigation will be agreed with the LPA in advance of implementation to ensure it is proportionate, robust, and appropriate to the significance of the identified assets.

7.6.2 WORLD HERITAGE SITE

Specific mitigation for Hadrian's Wall WHS will include the production of a Heritage Impact Assessment (HIA), as necessitated by UNESCO's WHS toolkit[88]. This will be employed to evaluate how the Proposed Development may affect the Outstanding Universal Value (OUV) of the WHS and the attributes for which it was inscribed on the World Heritage List.

[88] UNESCO, Guidance and Toolkit for Impact Assessments in a World Heritage Context. Available online at: World Heritage Centre - Guidance and Toolkit for Impact Assessments in a World Heritage Context

7.6.3 EFFECT TO SETTING

In the first instance mitigation of adverse impacts to Setting will be made by changes in layout and design of the Proposed Development, where this is practicable within the limits of other constraints. Where changes to layout and design is not practicable consultation with HE and the relevant LPAs regarding setting impacts will be undertaken. Practical measures to reduce the impact will be developed, following specific guidance provided by HE.

As detailed above in **Section 7.4.2,** 41 designated assets have been assessed as sensitive to changes in setting as a result of the Proposed Development.

7.7 SCOPE OF THE ES CHAPTER

Table 7.3 contains a list of all environmental factors relating to cultural heritage and archaeology that will be **scoped in** to or **scoped out** of the assessment.

TABLE 7.3 ENVIRONMENTAL FACTORS TO BE SCOPED IN OR OUT OF THE ASSESSMENT

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
Direct physical impacts to Heritage Assets within the Site.	Scoped In	Direct physical impacts to heritage assets as a result of the Proposed Development are considered possible and would have a significant impact if identified.
Indirect physical impacts to Heritage Assets within 1 km.	Scoped In	Indirect physical impacts to heritage assets as a result of the Proposed Development are considered possible and would have a significant impact if identified.
Setting impacts to designated assets within the 15 km Study Area.	Scoped In	Additional assets beyond 15 km may be scoped in where: • They fall within the bare earth ZTV; • They have been requested for assessment by stakeholders; and/or, • They have the potential to be impacted by the Proposed Development.
Setting impacts to regionally and nationally important non-designated heritage assets within the 5 km Study Area, with inclusion for assessment decided following consultation and sieving exercise.	Scoped In	Additional assets beyond 5 km may be scoped in where: • They fall within the bare earth ZTV; • They have been requested for assessment by stakeholders; and/or,

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
		• They have the potential to be impacted by the Proposed Development.
The Cumulative Effect of the Proposed Development in conjunction with other wind farm developments within 15 km.	Scoped In	Additional developments beyond 15 km may be included for assessment where: • Bare earth ZTVs overlap; • They have been requested for assessment by stakeholders; and/or, • They have the potential to impact the setting of assets in conjunction with the Proposed Development.
Assessment of the direct physical impacts to heritage assets outwith the Site and Cable Corridor Options, with the exception of designated assets such as bridges along transport routes.	Scoped Out	No direct physical impacts to heritage assets are expected to occur outside Site boundaries as there is not expected to be any project activity occurring outside the Site boundaries. On that basis, this has been scoped out of the EIA.
Indirect physical impacts to heritage assets outwith the 1 km Study Area, with the exception of designated assets such as bridges along transport routes.	Scoped Out	No indirect physical impacts to heritage assets are expected to occur outside 1 km Study Area as the infrastructure and construction activities associated with the Proposed Development would not be anticipated to generate any ground disturbance that would result in an indirect effect on heritage assets. On that basis, this has been scoped out of the EIA.

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
Setting impacts to non-designated heritage assets of Local Importance (as defined by the HER).	Scoped Out	No setting impacts to heritage assets are expected to occur to non-designated assets. On that basis, this has been scoped out of the EIA.
Setting impacts to designated heritage assets between 5 and 15 km from the Site where they do not meet the selection criteria.	Scoped Out	These receptors do not meet the criteria which would require them to be scoped in to further assessment, and there is therefore likely to be little to no impact on the receptors described.
Setting impacts to Grade II* and II Listed Buildings beyond 5 km where they are located within or clearly associated with nucleated settlement.	Scoped Out	These receptors do not meet the criteria which would require them to be scoped in to further assessment, and there is therefore likely to be little to no impact on the receptors described.
Impact resulting from the Decommissioning phase of the Proposed Development.	Scoped Out	Impacts due to decommissioning would be localised within the construction footprint of the Proposed Development and therefore no additional impacts would be anticipated to result from decommissioning.

7.8 CONSULTATION AND SCOPING QUESTIONS

Consultation will be conducted with the following consultees:

- Northumberland County Council; and
- Historic England.

Key questions for consultees are:

- Q7.1 – Do consultees agree with the proposed methodology and scope of assessment?
- Q7.2 – Do consultees have any information regarding current or recent archaeological work or projects being undertaken within or in the vicinity of the Proposed Development, particularly those whose results may not yet be recorded in the local HER datasets?
- Q7.3 – Are consultees aware of any further sites with statutory protection within the wider landscape whose settings may be affected by the Proposed Development?
- Q7.4 – Do consultees have details of any cultural heritage sites in the vicinity of the Proposed Development which they consider may raise significant issues within the ES process for this Proposed Development?
- Q7.5 – Are consultees aware of any additional stakeholders who will require consultation or where consultation would be desirable?

8. ORNITHOLOGY

8.1 INTRODUCTION

This chapter sets out the proposed approach to the assessment of likely significant effects on ornithological interests during construction, operation and decommissioning of the Proposed Development. The assessment will focus on the likely impacts of the Proposed Development on important ornithological features or 'IOFs' (e.g. populations of bird species of conservation concern, and their supporting habitats, and vulnerability to the range of impacts from onshore wind farm development). Likely significant effects on non-avian fauna are considered in **Chapter 9: Ecology and Nature Conservation** of this Report.

This chapter is supported by the following figures:

- Figure 8.1a-b: Relevant Designated Sites with the Study Areas;
- Figure 8.2: Ornithological Survey Areas (2023-2025); and
- Figure 8.3: Flight Activity Survey Vantage Point Locations and Viewsheds.

Additionally, further information from breeding bird and bird flight activity surveys completed over two years, between 2023 and 2025, has been collected and will be discussed with consultees in the next stage of the project.

This chapter also considers the potential for statutory designated sites, of national and/or international importance for birds, to be directly or indirectly affected by the Proposed Development. In relation to the legislation protecting Special Protection Areas (SPAs), this is intended to inform the initial screening process by the competent authority for 'likely significant effects', alone and in combination with other plans or projects. This screening process will allow the competent authority to determine whether an Appropriate Assessment (AA) will be required. Consideration is also given to the potential impacts and likely significant effects on designated sites, and IOFs in the wider countryside, related to the grid connection of the Proposed Development (i.e. the 'Cable Corridor Options').

A high-level ornithological desk study was completed in advance of field surveys, which commenced in March 2023, and was updated March-April 2026 in preparing this chapter. A total of 24 months of continuous bird survey, focused on the Site, was completed between March 2023 and March 2025. The results of the desk study and surveys completed to date are summarised in this chapter. This information, along with publicly available information on species and habitats present / likely to be present and potentially impacted by

the Proposed Development, has been collated and reviewed to inform the proposed approach to the EIA process as set out in this chapter.

8.2 LEGISLATION, POLICY AND GUIDANCE

The approach taken to this study (i.e. the scope and methods of ongoing/proposed surveys and the impacts assessment methods) draws on a range of guidance from several sources including guidance produced or adopted by government, statutory nature conservation organisations and scientific literature.

Statutory protection for wild birds and the habitats that support them is provided for by national legislation which originally implemented key European Union (EU) directives. Within the EU, the key legislative measures providing for the protection of birds are Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (the 'EC Birds Directive') and Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive'). The most relevant provisions of the EC Birds Directive are the identification and classification of SPAs for rare or vulnerable species listed in Annex I of the EC Birds Directive and for all regularly occurring migratory species. Following the withdrawal of the United Kingdom from the European Union, the Directives have been incorporated into UK law via the Habitats Regulations.

In addition to the relevant EIA regulations, consideration will also be given to the requirements of all other relevant legislation, directives and conventions, which will be taken into account in the impact assessment and are summarised below.

8.2.1 LEGISLATION

- The Convention for the Conservation of European Wildlife and Natural Habitat (The Bern Convention) 1979;
- Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the EC Habitats Directive)[89];
- Council Directive 2009/147/EC on the conservation of wild birds (codified version of the 'EC Birds Directive')[90];

[89] https://eur-lex.europa.eu/eli/dir/1992/43/oj/eng
[90] https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:020:0007:0025:en:PDF

- The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations)[91];
- The Conservation of Habitats and Species (Amendment) Regulations 2017 (Habitats Regulations)[92];
- The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019[93];
- Wildlife and Countryside Act 1981 (WCA)[94]; and
- The Environment Act 2021[95].

8.2.2 NATIONAL PLANNING POLICY

8.2.2.1 NATIONAL POLICY STATEMENTS

Relevant national and local authority planning policy (e.g. in relation to development and natural heritage, relevant Local and National Biodiversity policy) will also be taken into full consideration within the assessment, including the following: The energy National Policy Statements (NPSs), EN-1 – EN-6, outline the government's policy for delivering major energy infrastructure. The NPSs that are of relevance to the Proposed Development are:

- Overarching National Policy Statement for Energy (2025) (EN-1);
- National Policy Statement for Renewable Energy Infrastructure (2025) (EN-3); and
- National Policy Statement for Electricity Networks Infrastructure (2025) (EN-5).

Details of specific policies within EN-1, EN-3 and EN-5 that are considered relevant to ornithology are set out in **Table 8.1** below.

[91] UK Government (2017) The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. Available online at: https://www.legislation.gov.uk/uksi/2017/572/contents
[92] UK Government (2017) The Conservation of Habitats and Species Regulations 2017. Available online at: https://www.legislation.gov.uk/uksi/2017/1012/contents
[93] UK Government (2019) The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Available online at: https://www.legislation.gov.uk/ukdsi/2019/9780111176573
[94] UK Government (1981) Wildlife and Countryside Act 1981. Available online at: https://www.legislation.gov.uk/ukpga/1981/69
[95] UK Government (2021) Environment Act. Available online at: https://www.legislation.gov.uk/ukpga/2021/30/contents

TABLE 8.1 NATIONAL PLANNING POLICY STATEMENTS

NPS Reference	NPS Requirement
EN-1, paragraph 5.4.23	*"The design of energy NSIP proposals will need to consider the movement of mobile/migratory species such as birds, fish and marine and terrestrial mammals and their potential to interact with infrastructure. As energy infrastructure could occur anywhere within England and Wales, both inland and onshore and offshore, the potential to affect mobile and migratory species across the UK and more widely across Europe (transboundary effects) requires consideration, depending on the location of development. Applicants should consider relevant plan policies in marine plans in England."*
EN-3, paragraph 2.12.71-72	*"There is a risk of harm, either through disturbance, displacement, habitat loss or collision. Applicants must conduct a thorough assessment of impacts on birds and bats. The level of assessment effort should be determined in accordance with best practice and take into account the proximity of ecological receptors."* *"Applicants should discuss the scope, effort and methods required for assessments with the relevant statutory advisor, taking into consideration baseline data collected from the site and surrounding area and, where available, monitoring data from operational wind farms."*
EN-3, paragraph 2.12.117-118	*"Subject to other constraints, wind turbines should be laid out within a site in a way that minimises collision risk. Turbine parameters should also be developed to reduce collision risk where the assessment shows there is a significant risk of collision (e.g., altering rotor height)."* *"Applicants must undertake avoidance, management, mitigation or compensatory measures for other impacts such as habitat loss or displacement."*
EN-5 paragraph 2.10.3	*"Making lines more visible by methods such as the fitting of bird flappers and diverters to the earth wire, which swivel in the wind, glow in the dark*

NPS Reference	NPS Requirement
	and use of fluorescent colours designed specifically for bird vision can also reduce the risk of bird collisions and number of potential deaths. The design and colour of the diverters will be specific to the conditions – the line and pylon/transmission tower specifications and the species at risk."
EN-5 paragraph 2.10.4	*"Electrocution risks can be reduced through the design of lattice steel tower crossarms, insulators and the construction of other parts of high voltage power lines so that birds find no opportunity to perch near energised power lines on which they might electrocute themselves."*

8.2.2.2 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

National Planning Policy Framework (NPPF) Chapter 15, Conserving and Enhancing the Natural Environment, is particularly relevant to ornithology. While it does not specifically make reference to birds, it establishes the approach by which the planning system is required to contribute to, and enhance, the natural and local environment while maintaining local character. This includes measures such as:

- making quantifiable enhancements to biodiversity;
- avoiding nature designations;
- accounting for pollution risks and potential hazards to ground conditions;
- identifying, mapping and safeguarding the following components:
- local habitats and wider ecological networks (including the hierarchy of international, national, and locally designated sites of importance for biodiversity);
- wildlife corridors and stepping stones that connect them; and
- areas identified by national and local partnerships for habitat management, enhancement, restoration and / or creation.

8.2.3 LOCAL PLANNING POLICY

Local planning policy relevant to ornithology matters will be identified and drawn from:

Northumberland Local Plan 2016-2036[4], key policy includes:

- Policy ENV 2 Biodiversity and Geodiversity.

Northumberland National Park Local Plan (2020)[96], key policy includes:

- Policy DM10 Habitats, Biodiversity and Geodiversity

8.2.4 GUIDANCE

Relevant guidance in relation to the implementation of the legislation and policy listed above will be taken into consideration along with best practice guidance for baseline surveys and the EIA process. Where there is no specific English guidance available, Scottish guidance is being used. The following is a list of the key guidance documents; additional reference materials are cited in the survey methods section:

[96] Northumberland National Park (2020) Local Plan. Available online at: https://www.northumberlandnationalpark.org.uk/planning/planning-policy/local-plan/

- Planning Practice Guidance (PPG) (last updated Dec 2024);
- North East Combined Authority Local Nature Recovery Strategy (LNRS) for the North of Tyne 2025[5];
- Northumberland Local Biodiversity Action Plan 2008 (LBAP)[6];
- CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine[97]. Chartered Institute of Ecology and Environmental Management, Winchester (Version 1.3, Updated September 2024);
- Natural England and Department for Environment, Food and Rural Affairs (June 2015). Guidance. Wild birds: surveys and monitoring for onshore wind farms.[98];
- NatureScot (March 2025)[99]. Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas, with application to other parts of the UK alongside Natural England Guidance: Guidance for Bird Surveys in Relation to Onshore Windfarms (Natural England) (June 2015)[100];
- NatureScot (2016). Guidance on Assessing Connectivity with Special Protection Areas (Version 3, June 2016)[101];
- NatureScot (2018). Assessing the Cumulative Impacts of Onshore Wind Farms on Birds (Updated March 2025)[102];

[97] CIEEM (2018) EcIA Guidelines. Available online at: https://cieem.net/wp-content/uploads/2018/08/EcIA-Guidelines-v1.3-Sept-2024.pdf
[98] UK Government (2015) Wild Birds: Surveys and Monitoring for Onshore Windfarms. Available online at: https://www.gov.uk/guidance/wild-birds-surveys-and-monitoring-for-onshore-wind-farms
[99] NatureScot (2025) Guidance Note Assessing the Significance of Impacts on Bird Populations from Onshore Wind Farms that do not Affect Protected Areas. Available online at: https://www.nature.scot/doc/guidance-assessing-significance-impacts-bird-populations-onshore-wind-farms-do-not-affect-protected
[100] UK Government (2015) Wild Birds: Surveys and Monitoring for Onshore Wind Farms. Available online at: https://www.gov.uk/guidance/wild-birds-surveys-and-monitoring-for-onshore-wind-farms.
[101] NatureScot (2016) Assessing Connectivity with Special Protected Areas. Available online at: https://www.nature.scot/doc/assessing-connectivity-special-protection-areas
[102] NatureScot (2016) Assessing Connectivity with Special Protected Areas. Available online at: https://www.nature.scot/doc/assessing-connectivity-special-protection-areas

- NatureScot (2022). NatureScot Research Report 1283 – Disturbance Distances Review: An updated literature review of disturbance distances in selected bird species[103];
- NatureScot (2024) Guidance on using an updated collision risk model to assess bird collision risk at onshore wind farms (Updated April 2025)[104];
- NatureScot (2025). Guidance – Assessment and mitigation of impacts of power lines and guyed meteorological masts on birds[105];
- Stanbury *et. al* (2021). The status of our bird populations: the 5th Birds of Conservation Concern[106];
- Brown, A.F. and Shepherd, K.B. (1993) A method for censusing upland breeding waders. Bird Study. 40: 189-195[107];
- Gilbert, G., Gibbons, D.W. and Evans, J. (1998) Bird Monitoring Methods. Royal Society for the Protection of Birds, Sandy, Bedfordshire[108];

[103] NatureScot (2022). NatureScot Research Report 1283 – Disturbance Distances Review: An updated literature review of disturbance distances in selected bird species. Available online at: https://www.nature.scot/doc/naturescot-research-report-1283-disturbance-distances-review-updated-literature-review-disturbance

[104] NatureScot (2024) Guidance on using an updated collision risk model to assess bird collision risk at onshore wind farms. Available online at: https://www.nature.scot/doc/guidance-using-updated-collision-risk-model-assess-bird-collision-risk-onshore-wind-farms

[105] NatureScot (2025). Guidance – Assessment and mitigation of impacts of power lines and guyed meteorological masts on birds. Available online at: https://www.nature.scot/doc/guidance-assessment-and-mitigation-impacts-power-lines-and-guyed-meteorological-masts-birds

[106] Stanbury, A. J., Eaton, M. A., Aebischer, N. J., Balmer, D. E., Brown, A. F., Douse, A., Lindley, P., McCulloch, N., Noble, D. G., & Win, I. (2021). The status of our bird populations: the 5th Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and 2nd IUCN Red List assessment of extinction risk for Great Britain. *British Birds*, 114, 723–747. Available online at: https://www.bto.org/our-work/science/publications/reports/birds-conservation-concern

[107] Brown, A.F., & Shepherd, H.B. (1993). A method for censuring upland breeding waders. Bird Study 40: 189-195. DOI: 10.1080/00063659309477182

[108] Gilbert, G., Gibbons, D.W. & Evans, J. (1998). Bird Monitoring Methods. Royal Society for the Protection of Birds, Sandy, Bedfordshire. ISBN: 1901930033, 9781901930030

- Hardey, J., Crick, H.Q.P., Wernham, C.V., Riley, H.T., Etheridge, B. and Thompson, D.B.A. (2013). Raptors: a Field Guide to Survey and Monitoring (3rd Edition). The Stationary Office, Edinburgh[109]; and
- Marchant, J.H. (1983). Common Birds Census Instructions. British Trust for Ornithology, Tring[110].

8.3 BASELINE CONDITIONS AND KEY SENSITIVITIES

8.3.1 STUDY AREA

The Study Areas established for the assessment of the Proposed Development are based on current best practice guidance (i.e. Chartered Institute of Ecology and Environmental Management (CIEEM) and NatureScot wind farm guidelines), see **Figures 8.1a-b and 8.2**. They encompass the full extents of the Proposed Development and areas beyond this where impacts such as displacement and disturbance could affect bird species that will be the focus of the assessment, during the construction, operation and decommissioning phases.

Additionally, wider study areas have been established to consider likely significant effects on designated sites in the region. The desk Study Area in relation to designated sites extends to a maximum of 30 km from the Site and 5km from the Cable Corridor Options. The maximum distance is with respect to the connectivity of bird species with SPAs. The 5km desk Study Area is used based on the nominal maximum core breeding range for the species that are likely to be a focus for the EIA.

For the purposes of the 2023-25 bird surveys the Site was divided into three main areas (not shown on figures), comprising Raylees Common (Area A, 680 ha), Ottercops Moss (Area B, 1046 ha) and Harwood Forest (Area C, 619 ha). During Spring 2025 Area C was removed from the potential development area because it was no longer included in the potential developable area being considered by the Applicant.

Area A (Raylees Common) is largely comprised of non-native conifer plantation managed as commercial forestry. Area B (Ottercops Moss) is dominated by

[109] Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. & Thompson, D. (2013). Raptors: a field guide to survey and monitoring (3rd Edition). The Stationery Office, Edinburgh. Available online at: https://raptormonitoring.org/need-advice-on-monitoring

[110] Marchant, J.H. (1983) Common Birds Census Instructions. British Trust for Ornithology, Tring. Available online at: https://www.bto.org/sites/default/files/u31/downloads/details/CBC-instructions-g100.pdf

unenclosed moorland habitats (a mosaic of dwarf-shrub heath, acid grassland, marshy grassland and various mire vegetation communities) which are used for extensive sheep and cattle grazing. Also, enclosed fields of improved pasture for sheep and cattle rearing.

The Site ranges in altitude from c. 250 m in the west (Area A) to c. 320 m on the elevated moorland plateau on Ottercops Moss. The operational Ray Wind Farm is located to the immediate south of Area B and is comprised of 16 turbines, which have been operational since 2017. There are several minor watercourses that drain the Site, including the Ottercops Burn, which flows in an easterly direction through the eastern part of the site, and the Black Burn, which flows in a westerly direction through the Raylees plantation towards the River Rede.

8.3.2 DESIGNATED SITES

8.3.2.1 STATUTORY DESIGNATED SITES

The Site is not located within or adjacent to any statutory site designated solely, or in part, for its ornithological interest, for example any SPA or Site of Special Scientific Interest (SSSI). There are several such designations present in the wider Study Area (i.e. within 20 km of the Site), see **Figure 8.1a-b: Relevant Designated Sites within the Wind Farm Study Area** and **Relevant Designated Sites within the Grid Connection Study Area**. See Table 8.2 for a summary of relevant statutory designated sites within the Study Area.

The nearest SPA to the Cable Corridor Options is the North Pennine Moors SPA, which is located c. 6.5 km to the southwest of the southern connection point (i.e. Fourstones substation). This SPA is designated for several bird species listed on Annex I of the EC Birds Directive whose breeding populations, supported by the SPA, exceed national and international levels of importance, including hen harrier (Circus cyaneus), merlin (Falco columbarius), peregrine (F. peregrinus) and golden plover (Pluvialis apricaria). The Cable Corridor Options are outside of the core breeding range for each of these species, but within the maximum range of hen harrier, peregrine, and golden plover, based on NatureScot SPA connectivity guidance.

The nearest Special Protection Area to the Site is Northumbria Coast SPA and the Northumberland Marine SPA, both of which are located c. 28 km to the east of the Site. These SPAs are designated for a wide range of bird species listed on Annex I of the EC Birds Directive whose populations, supported by the SPA, exceed national and international levels of importance, including Arctic

tern (*Sterna paradisaea*), little tern (*Sternula albifrons*), Sandwich tern (*Sterna sandvicensis*), common tern (*Sterna hirundo*) and roseate tern (*Sterna dougallii*). Additionally, these areas are also designated for the assemblage of migratory gulls, waders and cliff nesting seabirds including puffin (*Fratercula arctica*); and guillemot (*Uria aalge*); turnstone (*Arebaria interpres*) and purple sandpiper (*Calidris maritima)* that the SPA supports.

All the qualifying species of these SPAs have a core foraging range below the distance that exists between the SPAs and the Site.

The nearest SPA to the Cable Corridor Options is the North Pennine Moors SPA, which is located c. 6.5 km to the southwest of the southern connection point (i.e. Fourstones substation). This SPA is designated for several bird species listed on Annex I of the EC Birds Directive whose breeding populations, supported by the SPA, exceed national and international levels of importance, including hen harrier (*Circus cyaneus*), merlin (*Falco columbarius*), peregrine (*F. peregrinus*) and golden plover (*Pluvialis apricaria*). The Cable Corridor Options are outside of the core breeding range for each of these species, but within the maximum range of hen harrier, peregrine, and golden plover, based on NatureScot SPA connectivity guidance.

TABLE 8.2 LIST OF STATUTORY DESIGNATED SITES (WITH ORNITHOLOGICAL INTEREST) IN THE STUDY AREA

Designated Site	Approximate Distance (km) from Site/Cable Corridor Options	Summary of Designated Site Interest
North Pennine Moors SPA[i]	26 km (south / southwest), 6.5 km from the Cable Corridor Options (southwest)	The area qualifies under Article 4.1 (of Annex I of the European Council Directive 79/409/EEC on the Conservation of Wild Birds) by: • regularly supporting more than 1% of the GB populations of hen harrier (11 breeding pair, 2.3%); merlin (136 breeding pairs, 10.5%), peregrine (15 breeding pairs, 1.3 %), and golden plover (1,400 pairs, 6.2%) all of which are listed in Annex I of the EC Birds Directive.
Northumbria Coast SPA[i]	28 km (east)	The area qualifies under Article 4.2 (of Annex I of the European Council Directive 2009/147/EC on the Conservation of Wild Birds) by: • regularly supporting more than 1% of the GB populations of Arctic tern (2.92%) and Little tern (1.7%), both of which are listed in Annex I of the EC Birds Directive; and • regularly supporting more than 1% of the biogeographical population of two regularly occurring migratory species, Turnstone (2.6%) and purple sandpiper (1.6%) not listed in Annex I of the EC Birds Directive.

Designated Site	Approximate Distance (km) from Site/Cable Corridor Options	Summary of Designated Site Interest
Northumberland Marine SPA[i]	28 km (east)	This area qualifies under Article 4.2 by: • regularly supporting more than 1% of the GB populations of Sandwich tern (19.66%), Common tern (12.86%), Arctic tern (9.02%), Roseate tern*)* (93.02%) and Little Tern (2.37%), all of which are listed in Annex I of the EC Birds Directive; • regularly supporting more than 1% of the biogeographical population of two regularly occurring migratory species, Puffin (2.6%) and Guillemot not listed in Annex I of the EC Birds Directive; and • the site is used regularly by over 20,000 seabirds in any season.
Irthinghead Mires Ramsar Site[ii]	20-30 km (southwest), 13 km from the Cable Corridor Options (west) at its closest point, and Butterburn Flow c. 19-20 km from the Cable Corridor Options (west)	A composite site embracing seven separate areas of mire. One of these mires, Butterburn Flow supports breeding waders.
Hexhamshire Moors SSSI[iii]	26 km (south / southwest), 6.5 km from the Cable Corridor Options (southwest)	The site is designated for: • the presence of the following species listed on Annex 1 of the EC Council Directive on the conservation of wild birds (79/409/EEC): merlin, golden plover and short-eared owl.

Designated Site	Approximate Distance (km) from Site/Cable Corridor Options	Summary of Designated Site Interest
		• The site supports the following species which are included in Red Data Birds in Britain, edited by Batten L. A. *et al.* 1990: red grouse, golden plover, curlew, redshank, oystercatcher, dunlin and teal.

i. SPA: Special Protection Area: classified under the Conservation (Natural Habitats &c. Regulations 1994.
ii. Ramsar site: Sites of international importance designated under the criteria of the Ramsar Convention on Wetlands of International Importance as Waterfowl Habitat (1971).
iii. SSSI: Sites of Special Scientific Interest, notified under the WCA.

Northumberland National Park overlaps with the Cable Corridor Options for a length of c. 0.5-1.5 km at Hadrian's Wall. Although not specifically a designation for the protection of bird populations, the Northumberland National Park Authority (NPA), as part of its Management Plan[111] aims to conserve and enhance the natural beauty, wildlife and cultural heritage of the Northumberland uplands, with particularly relevant themes including Nature Recovery. The NPA is responsible for preparing, monitoring, implementing and reviewing its Local Plan, as required by the NPPF.

8.3.2.2 NON-STATUTORY DESIGNATED SITES

Ottercops Burn and Mosses Local Wildlife and Geological Site (LWGS), a non-statutory designation established by Northumberland County Council, lies partly within the Site boundary (Area B, Ottercops Moss) and extends across the existing Ray Wind Farm site (see **Figure 8.1a: Relevant Designated Sites within the Wind Farm Study Area**). The LWGS boundary is shown on the Northumberland Development Plan Policies Map[112]. Ornithological interest features listed for the LWGS include breeding birds such as lapwing (*Vanellus vanellus*), whinchat (*Saxicola rubetra*) and meadow pipit (*Anthus pratensis*). Linnheads Lake and Lisle Burn LWGS, which is located c. 1 km south of Area A, is notified, at least in part, for its breeding bird interest (no further details about the specific species of interest are available).

The following LWGS are also all located within the Cable Corridor Options: Ottercops Burn and Mosses, Linnheads Lake and Lisle Burn, The Wanneys and Aird Moss, Sweethope Loughs, Green Rigg Moss and Colt Crag Reservoir. Ridsdale Quarries LWGS is located within 500 m of the Cable Corridor Options. No details about the specific species of interest are available.

Benshaw Moor is a Northumberland Wildlife Trust (NWT) Reserve adjacent to the Site boundary, to the North of Ottercops Moss (see **Figure 8.1a: Relevant Designated Sites within the Wind Farm Study Area**). Benshaw Moor was purchased by NWT in 2019. It is a large reserve of 258 ha that comprises a range of upland moorland habitats including blanket bog, marshy grassland, acid flushes, transition mire and a mosaic of heathland and acid grassland. A

[111] Northumberland National Park Authority (2022) Management Plan. Available online at: https://www.northumberlandnationalpark.org.uk/about-us/committees-and-plans/management-plan/

[112] Northumberland County Council (2025) Northumberland Development Plan Policies Map. Available online at: https://experience.arcgis.com/experience/41ffa2efbcb041b5b926b1cbd2f053f0

management plan is being developed by NWT which may include areas of native woodland establishment and suitable levels of conservation grazing[113].

8.3.3 DESK STUDY RECORDS

The following section provides a summary of information for species of conservation concern and that are considered to be potentially vulnerable from the likely significant effects of wind farm or overhead line development. The information has been collated from public sources including recent Northumberland Bird Reports (NBR, i.e. 2021-2024)[114] and Wetland Bird Survey (WeBS) online records from the British Trust for Ornithology (BTO)[115] and focuses on the Study Area for the Proposed Development. However, for some scarce breeding species, summaries of records for Northumbria are included to provide a wider context.

A more extensive desk study, which would entail requests for notable records from a range of data holders such as the local raptor study group, the Royal Society for the Protection of Birds (RSPB), BTO, has not been completed but will be undertaken in parallel with the EIA scoping process.

8.3.3.1 GREYLAG GOOSE (*ANSER ANSER*)

Greylag goose is on the UK Amber List of Birds of Conservation Concern (Stanbury *et al.* 2021)[116]. It is a common passage and winter visitor to the Study Area, with an increasing breeding population.

Outside of the breeding season, notable roosting flocks within the Study Area have been recorded at Colt Crag reservoir (c. 9 km south of the Site, and adjacent to the Cable Corridor Options), and at Haughton Strother Gravel Pits (GP) a restored former quarry, located c. 14 km south-east of the Site and overlapping with the Cable Corridor Options.

[113] Benshaw Moor NWT Reserve and Rewilding (n.d.) Available online at: https://www.nwt.org.uk/nature-reserves/benshaw-moor and https://www.rewildingbritain.org.uk/rewilding-projects/benshaw-moor
[114] NTBC (2021) Northumberland Bird Reports. Available online at: https://www.ntbc.org.uk/?page_id=12
[115] WeBS Report Online (2024/2025). Available online at: https://app.bto.org/webs-reporting/numbers.jsp
[116] Stanbury et al (2021) The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. Available online at: https://www.bto.org/our-work/science/publications/reports/birds-of-conservation-concern/bocc5

Notable roost locations for the Study Area include Colt Crag reservoir, Hallington Reservoir, and Haughton Strother GP.

8.3.3.2 PINK-FOOTED GOOSE (ANSER BRACHYRHYNCHUS)

Pink-footed goose on the UK Amber List and a common passage migrant in the Study Area. The only desk study record relevant to the Study Area was at Haydon Bridge (located c. 25 km south of the Site and c. 6 km south-west of the Cable Corridor Options).

Roost locations in the Study Area, from recent BTO records, include Colt Crag reservoir and Haughton Strother GP.

8.3.3.3 WHOOPER SWAN (CYGNUS CYGNUS)

Whooper swan is on the UK Amber List, Schedule 1 (WCA) and is also listed on Annex I of the EC Birds Directive. It is a regular passage and winter visitor to the Study Area. Sites where whooper swan have been reported in the Study Area include Colt Crag reservoir, Haydon Bridge and Hallington Reservoir (c. 11 km from the Site, and c. 3 km from the Cable Corridor Options).

8.3.3.4 BLACK GROUSE (LYRURUS TETRIX)

Black grouse is on the UK Red List (Stanbury *et al.* 2021). The North Northumberland estimated population of black grouse has seen a near 97% decline, dropping from 61 displaying males in 1998 to two in 2014 (Warren, P. *et al.* 2015)[117]. The most recent estimate, in 2020, for the UK black grouse population is around 4,850 males (APEP, 2020[118]).

No records relating to black grouse were noted within the Study Area (including within c. 5km of the Cable Corridor Options). The nearest extant breeding population, based on Bird Report records (NBR), is in the North Pennines near Allendale, Hexhamshire and Plemeller Common (c. 25 km south of the Site, and c. 10 km south of the Cable Corridor Options).

8.3.3.5 NIGHTJAR (CAPRIMULGUS EUROPAEUS)

Nightjar is on the UK Amber List and Annex I of the EC Birds Directive. The desk study refers to breeding records from Harwood Forest, a commercial

[117]Philip Warren, Frances Atterton, David Baines, Manon Viel, Zoe Deal, Michael Richardson & David Newborn (2015) Numbers and distribution of Black Grouse *Tetrao tetrix* males in England: results from the fourth survey in 2014, Bird Study, 62:2, 202-207, DOI: 10.1080/00063657.2015.1013524

[118] Woodward et al (2020) APEP 4 – Population estimates of birds in Great Britain and the United Kingdom

conifer plantation located near to the northern boundary of the Site, the Raylees Estate, Colt Crag Reservoir, Sweethope Loughs (c. 5 km south of the Site, and overlapping the Cable Corridor Options), Ottercops and Great Wanney Crag (c. 4 km south of the Site, and 0.5 km from the Cable Corridor Options).

8.3.3.6 LAPWING (VANELLUS VANELLUS)

Lapwing is on the UK Red List. It is an abundant passage and winter visitor and common breeder within the Study Area. Notable passage and winter desk study records were from Colt Crag reservoir, Haughton Strother GP, Hallington Reservoir and Haydon Bridge, with breeding recorded in suitable habitats throughout the Study Area.

8.3.3.7 GOLDEN PLOVER (PLUVIALIS APRICARIA)

Golen plover is on the UK Green List and Annex I of the EC Birds Directive. It is an abundant autumn passage and winter visitor to the Study Area. Bird Report records for the Study Area between 2021-2024 include winter/passage flocks recorded from Colt Crag reservoir and Harwood Gibbet (which is located on the northern edge of the Site at the western edge of Harwood Forest).

8.3.3.8 CURLEW (NUMENIUS ARQUATA)

Curlew is on the UK Red List, whilst it remains a widespread breeding species in the Study Area, in the region and nationally, curlew has undergone significant range contraction and population decline. The only Bird Report records for the Study Area were from Colt Crag and Haughton Strother GP.

8.3.3.9 OSPREY (PANDION HALIAETUS)

Osprey is on the UK Amber List, on Schedule 1 of the WCA and Annex I of the EC Birds Directive. It is an uncommon summer and passage visitor, with breeding rare in the region. The nearest known breeding site is at Kielder reservoir (c. 20 km from the Site). The Bird Report refers to 9 breeding pairs in Northumberland in 2024. Reservoirs and waterbodies in the Study Area known to be visited by osprey included Haughton Strother GP, Sweethope Lough, Colt Crag, Hallington and Derwent reservoirs, Wark (North Tyne) and Haydon Bridge.

8.3.3.10 HONEY BUZZARD (PERNIS APIVORUS)

Honey buzzard is on the UK Amber List, on Schedule 1 of the WCA and Annex I of the EC Birds Directive. It is a rare and elusive breeding raptor in the region. The first fledged chicks since the 19th century were recorded in

Northumberland in 2022. There were reports of two home ranges occupied by honey buzzard pairs in Northumberland 2023.

8.3.3.11 GOLDEN EAGLE (AQUILA CHRYSAETOS)

Golden eagle is on the UK Green List, on Schedule 1 of the WCA and Annex I of the EC Birds Directive. It is a rare visitor to the region and former breeder. There have been several records for the Study Area in recent years, including at Simonside (c. 7km northeast of the Site), related to birds released for the South of Scotland Golden Eagle re-introduction project.

8.3.3.12 GOSHAWK (ACCIPITER GENTILIS)

Goshawk is on the UK Green List and Schedule 1 of the WCA. It is an uncommon resident and breeder within the region. A total of 41 home ranges were confirmed to be occupied by goshawk in Northumberland in 2023.

8.3.3.13 MARSH HARRIER (CIRCUS AERUGINOSUS)

Marsh harrier is on the UK Amber List and Schedule 1 of the WCA. It is an uncommon breeder and passage visitor to the region. Breeding was confirmed at up to six sites in Northumberland in 2023, with the main breeding sites at East Chevington (>25 km east of the Site).

8.3.3.14 HEN HARRIER (CIRCUS CYANEUS)

Hen harrier is on the UK Red List, on Schedule 1 of the WCA and Annex I of the EC Birds Directive. It is an uncommon passage and winter visitor, and rare breeder. The Hen Harrier Protection Partnership[119] recorded seven nests that successfully fledged chicks in 2022 in Northumberland. In 2023 there were 54 nests recorded across the upland areas of England, with Northumberland having the highest number of breeding attempts with a total of 17 (Natural England, 2023[120]). The Northumberland Ringing Group reported a total of 17 home ranges occupied by pairs in 2023, with 10 pairs fledging young.

[119] Northumberland National Park (2022) Northumberland Hen Harrier Protection Partnership. Available online at: https://www.northumberlandnationalpark.org.uk/26-young-hen-harriers-fledge-from-northumberland/

[120] Natural England (2023) Encouraging population growth for hen harriers as 141 chicks recorded in 2023. Available online at: https://deframedia.blog.gov.uk/2023/09/18/encouraging-population-growth-for-hen-harriers-as-141-chicks-recorded-in-2023/

8.3.3.15 RED KITE (MILVUS MILVUS)

Red kite is on the UK Green List, on Schedule 1 of the WCA and Annex I of the EC Birds Directive. It is an uncommon visitor to Northumberland and a rare breeder. There have been recent sightings from Yardhope (Otterburn Training Area), Hexham, Wark (North Tyne), and Kirkwhelpington.

8.3.3.16 SHORT-EARED OWL (ASIO FLAMMEUS)

Short-eared owl is on the UK Amber List and Annex I of the EC Birds Directive. It is an uncommon passage and winter visitor and uncommon breeder in Northumberland. A total of eight short-eared breeding pairs were recorded in 2021 across Northumberland, mainly in the North Cheviots, with sightings reported from Colt Crag reservoir, Sweethope Lough and Hexham between 2021-2024.

8.3.3.17 BARN OWL (TYTO ALBA)

Barn owl is on the UK Green List and on Schedule 1 of the WCA. The Northumberland Ringing Group reported a total of 74 home ranges occupied by barn owl pairs in 2024. Bird Report locations referring to barn owl, within the Study Area, include Wallington Estate, Haughton Strother GP, Hexham and Hadrian's Wall.

8.3.3.18 MERLIN (FALCO COLUMBARIUS)

Merlin is on the UK Red List, on Schedule 1 of the WCA and Annex I of the EC Birds Directive. It is an uncommon passage and winter visitor and scarce breeder within the region. A total of 30 breeding ranges were confirmed to be occupied in Northumberland in 2023.

8.3.3.19 HOBBY (FALCO SUBBUTEO)

Hobby is on the UK Green List and Schedule 1 of the WCA. It is an uncommon visitor to the region during passage periods and rare breeder (last recorded breeding in Northumberland 2011). Recent observations in the Study Area include Tod Crag Moss (within the Site), Haughton Strother GP and Colt Crag reservoir.

8.3.3.20 PEREGRINE (FALCO PEREGRINUS)

Peregrine is on the UK Green List, on Schedule 1 of the WCA and Annex I to the EC Birds Directive. It is an uncommon passage and winter visitor, and uncommon breeder. A total of 13 home ranges in Northumberland were occupied by breeding pairs in 2023.

8.3.4 RAY WIND FARM SURVEYS (2003-2025)

The Site is located near (within c. 10km) to several operational wind farms, the closest being Ray Wind Farm (16 turbines) which is located on land adjacent to the south and eastern boundary of the Site. The Study Area for the EIA of the operational Ray wind farm overlaps partially with the survey area of the Proposed Development (**Figure 3.1** shows the location of the operational windfarm)

Below is a summary of key findings from bird surveys carried out for the EIA of the Ray Wind Farm. Baseline EIA surveys were completed between November 2003 and September 2005. The Environmental Statement (ES) was published in December 2005. Post-ES surveys, focusing on breeding hen harrier, were carried out between 2006 and 2009. Pre-Construction surveys were carried out between 2012 and 2015.

The Ray Wind Farm was constructed between 2015 and 2017. There have been operational (post-construction) monitoring surveys undertaken since 2017, consisting of: breeding moorland wader surveys in Years 1 (2017), 2 (2018) and 3 (2019), and breeding raptor surveys annually in each of the first five years of operation (2017-2021)[121]. Bird monitoring surveys ended in 2021, as the analysis of the findings of the previous five years confirmed that there was no requirement for any additional monitoring.

However, as part of the planned 10 years of operational monitoring for the Bat Operational Monitoring Plan, bat monitoring has continued at the Ray Wind Farm between 2022 and 2025. During the bat carcass detection surveys records of any notable bird species carcasses were recorded.

Confidential breeding raptor records, related to Ray Wind Farm in 2025, have been provided by the Applicant as they are relevant to the Proposed Development raptor survey area.

8.3.4.1 BREEDING BIRDS

This section summarises key findings from various breeding bird surveys completed for the Ray Wind Farm EIA (2003-2005), post-ES (2006-2010), pre-construction (2012-2015), construction (2015-17) and operational phase (2017-25).

In 2004-05, peregrines were recorded using two breeding locations within 5 km of the proposed Ray Wind Farm site. One of these nest sites is adjacent to

[121] Natural Power (2022) Ray Wind Farm, Northumberland. Operational Monitoring Year 5 Bird Report 2021. Report to Vattenfall Wind Power Ltd.

Site and the other >3 km from the Site. One pair of breeding merlin (*Falco columbarius*) was recorded in 2004 and in 2005, at different locations. One of these locations was within the Site and the other within c. 500 of the Site. Evidence of at least one pair of barn owl (*Tyto alba*) breeding within the survey area was also recorded in 2004 and 2005, located > 3 km from the Site. Possible breeding by short-eared owl (*Asio flammeus*) was noted at two locations in 2005, one within the Site and the other within c. 1 km from the Site.

In 2004 and 2005, three breeding territories of goshawk (*Accipiter gentilis*) were identified with probable nesting at one and two other areas occupied early in the season. One of these sites was within the Site, with all other > 1.5 km from the Site.

A single failed hen harrier (*Circus cyaneus*) breeding attempt was recorded during the 2006 post-ES surveys (within c. 500 m from the Site), with no further evidence of breeding activity recorded during subsequent surveys until 2025 (also within c. 500 m from the Site).

No rare or scarce raptors were found to be breeding within the Ray Wind Farm site during the 2012 pre-construction surveys. Common buzzard (*Buteo buteo*) and common kestrel (*Falco tinnunculus*) were recorded breeding, and peregrines were observed but no breeding activity was recorded.

Several species of breeding waders were recorded during the Ray Wind Farm EIA and pre-construction surveys (2004, 2005 and 2012) including golden plover (*Pluvialis apricaria*), lapwing, common snipe (*Gallinago gallinago*), curlew (*Numenius arquata*), common redshank (*Tringa totanus*) and woodcock (*Scolopax rusticola*).

Other breeding birds of conservation concern and/or species statutory protection (i.e. listing on Schedule 1 to the WCA) recorded during these surveys included cuckoo (*Cuculus canorus*), song thrush (*Turdus philomelos*), common crossbill (*Loxia curvirostra*), lesser redpoll (*Acanthis flammea cabaret*), whinchat (Saxicola rubetra) and spotted flycatcher (*Muscicapa striata).*

Notable records from the Ray Wind Farm construction surveys include a pair of merlin successfully breeding within the Ray Wind Farm site in 2015 and 2016 (both records within c. 0.5-1 km from the Site). A pair of goshawk also successfully bred in the survey area in 2016 (located > 2 km from the Site).

Notable records from the Ray Wind Farm Operational Monitoring surveys include a pair of merlin successfully breeding within the Ray Wind Farm site

(and located within c. 0.5-1 km from the Site) every year between 2017 and 2021. A pair of goshawk also successfully bred in the survey area in 2018 and 2021 (both locations > 2 km from the Site).

8.3.4.2 WILDFOWL / WINTERING BIRDS

No evidence was found for appreciable use of the Ray Wind Farm Study Area by wintering geese or swans. Although goose and swan wintering sites (roosting and foraging) are present in the surrounding area (e.g. Sweethope Lough) there was little evidence of geese or swans regularly over-flying the main Study Area during the passage or winter periods.

8.3.4.3 BIRD CARCASS RECORDS

As part of operational monitoring of Ray Wind Farm, bat carcass detection surveys with specially trained detection dogs were carried out each year between 2017 and 2025. During these surveys bird carcasses were recorded opportunistically.

In relation to notable species, one peregrine carcass was found in 2020 and one osprey and one merlin in 2024.

8.3.5 SURVEY RESULTS

8.3.5.1 INTRODUCTION

The following is a summary of the bird species of conservation concern recorded within or near to the Site from surveys completed by MBEC for the Proposed Development between March 2023 and March 2025. The breeding bird survey areas are shown on **Figure 8.2: Ornithological Survey Areas 2023-2025** and the vantage point (VP) locations established for the flight activity survey are shown on **Figure 8.3: Flight Activity Survey Vantage Point Locations and Viewsheds**.

The following ornithological surveys have been completed to date to inform the design and assessment of the Proposed Development:

- Bird Flight Activity Surveys, 36 hours of observation per season (summer and winter) from each VP (see **Figure 8.3**), to systematically quantify the use of the Site by key species[122], completed between March 2023 and March 2025, comprising 11 VPs and an additional VP during the breeding bird season (April-July);

[122] Also referred to as Target and Secondary species.

- Breeding Bird Surveys: a range of surveys completed to determine the presence and approximate location of breeding territories/sites within the core and wider survey areas, including the following:
  - Breeding wader and songbird surveys of the core survey area during April to July 2023 and repeated in 2024;
  - Breeding scarce raptor surveys, focusing on species listed on Schedule 1 of the WCA, within suitable habitats in the raptor survey area during March to July 2023 and repeated in 2024; and
  - Breeding nightjar (*Caprimulgus europaeus*) surveys completed between June and mid-July 2023 and repeated in 2024.
- Winter waterbird and raptor surveys to assess the use of the Site by passage and wintering swans, geese, waders and raptors during September 2023 to mid-May 2024 and repeated from September 2024 to March 2025.

Update wintering raptor surveys focused on the Site have also been undertaken between October 2025 and March 2026. Update breeding raptor surveys of the Site are proposed for March to July 2026. Breeding bird and bird flight activity surveys for the Cable Corridor Options are proposed to be completed between April 2026 and March 2027. The results of these recently completed and upcoming surveys will be reported separately, further detail is provided **Section 8.3.5.7**.

8.3.5.2 SURVEY METHODS

Baseline ornithological surveys were carried out to assess the use of all habitats within the Site and surrounding survey areas by breeding and non-breeding birds with a particular focus on species that are potentially sensitive to wind farm development and are also of conservation concern (i.e. species listed on Annex I of the EC Birds Directives, Schedule 1 of the WCA, species on the UK Red List of Birds of Conservation Concern).

- The following provides an overview of the survey methods. All surveys were undertaken by suitably experienced ornithological surveyors trained in the detailed field and recording methods of each of the surveys undertaken. All surveys followed methods set out in current Natural England and NatureScot guidance (i.e. 'Recommended bird survey methods to inform impact assessment of onshore wind farms, March 2017')[123]. Other key

[123] NatureScot (2017) Recommended bird survey methods to inform impact assessment of onshore wind farms. Available online at: https://www.nature.scot/doc/recommended-bird-survey-methods-inform-impact-assessment-onshore-windfarms

references for survey methods include Brown, A.F. and Shepherd, K.B. (1993)[124]; and

- Gilbert, G., et al. (1998)[125], Hardey, J. *et al.* (2013)[126] and Marchant, J.H. (1983)[127].

Breeding Waders

A moorland breeding bird survey was completed following an adapted version of the constant search method described by Brown and Shepherd (1993)[128] to census upland breeding waders. Surveys are undertaken across all suitable habitats within the accessible parts of the core survey area (see **Figures 8.2**) between April and July (during 2023 and 2024) and include four repeat visits spaced approximately four weeks apart. Fieldwork is conducted between 0600 and 1730 and not undertaken in high winds (greater than Beaufort force 5), in persistent rain / snow or when visibility is poor (<300 m).

The survey area is covered by a defined walked route to ensure that all ground is visible, pausing (approximately every 100 m) at appropriate vantage points to visually scan and to listen. All accessible areas are approached to within c. 100 m. Standard Common Birds Census recording codes are used to annotate field maps (Marchant 1983).

Birds are assumed to be breeding or holding territory if one or more of the following is noted:

- Birds displaying or singing;
- Nests, eggs or young seen;
- Adults repeatedly alarm-calling;
- Birds seen carrying food to nest or young;
- Distraction displays; and/or
- Territorial disputes.

[124] Brown et al (1993) A method for censusing upland breeding waders. Available online at https://cieem.net/resource/a-method-for-censusing-upland-breeding-waders/
[125] Gilbert, G., Gibbons, D. W. and Evans, J. (1998) Bird Monitoring Methods. RSPB, Sandy
[126] 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
[127] Marchant, J.H. (1983) Common Bird Census Instructions. BTO, Tring
[128] Brown, A. F. and Shepherd, K. B. (1993) A method for censusing upland breeding waders.

Any additional observations are noted onto recording forms. Any areas not surveyed (e.g. due to access constraints) are clearly marked on the map and an explanation provided as to why the area was not surveyed.

Estimates of the number of apparent territories are derived by comparing the results from the separate visits using various standardised criteria (see Gilbert *et al.* 1998 for further details). The central location of each apparently occupied territory (not necessarily the location of a nest) after comparing the mapped data between the survey visits, is plotted on a final map for presentation. It is important to note that for many species these estimates are not a full census of the entire population within a survey area, but they confirm the presence of breeding pairs and provide an indication of breeding density and the spatial distribution of territories.

Scarce Breeding Raptors

The main objective of the breeding raptor and owl surveys is to systematically search for and record any behaviour indicative of breeding attempts by rare or scarce raptor and owl species of conservation concern within suitable habitats in the defined survey area (see **Figure 8.2**).

Surveys to determine the presence and breeding status of scarce raptors in the survey area were carried out over a minimum of four visits between March and July (during 2023 and 2024). Several focal species were identified, based on the presence of potentially suitable habitats, and the distribution of the species in Northeast England relative to the Site. The focal species of interest for this survey are those that are relatively rare (i.e. less than 300 pairs in the UK), and/or of a relatively high conservation concern status and/or listed on Schedule 1 of the WCA and/or Annex I of the EC Birds Directive, such as hen harrier, merlin, peregrine, goshawk and short-eared owl.

Secondary species include those that are generally more widespread and common, but the list may include species whose national populations are of conservation concern such as common kestrel (*Falco tinnunculus*), tawny owl (*Strix aluco*) and long-eared owl (*Asio otus*). Finally, comparatively common and widespread species are not surveyed systematically but breeding observations are noted, for example common buzzard (*Buteo buteo*) and sparrowhawk (*Accipiter nisus*).

Surveyors follow species-specific methods detailed in Hardey *et al*. (2013). If it is established there is no evidence of occupancy or breeding activity during the first 1-2 visits to an area, then follow-up visits are not carried out. Where available, any existing information about breeding by the focal species in the

general area is also taken into consideration (e.g. 'traditional' nest sites or breeding records known to the local raptor study group or forum).

At the end of the survey, the information gathered during the various visits, and relevant observations from other surveys (e.g. breeding behaviour noted during the flight activity surveys) is collated and any identified raptor activity or breeding evidence is categorised as being a possible, probable or confirmed breeding territory / nest site following the species-specific methods detailed in Hardey *et al*. (2013).

Black Grouse

Black grouse reconnaissance and lek count surveys were carried out in April-May 2023 following the methods described in Gilbert *et al*. (1998). The surveys focused on areas of suitable habitat within the Site and up to 1.5 km from the Site, where access was possible (see **Figure 8.2** and survey limitations, see **Section 8.3.5.3**). Any existing records of black grouse lek locations identified during the desk study are reviewed in advance of the survey (in this case there are no recent records, although there were anecdotal reports of black grouse historically being present in the Raylees plantation area). Preparatory visits to assess habitat suitability and identify potential lekking locations were made during an initial daytime walkover. During the walkover an experienced surveyor searched for any field signs indicating the presence of this species. This includes any areas where black grouse are observed during other survey work or where there are historical records within the wind farm Study Area.

Areas considered to provide potentially suitable habitat are visited at dawn in suitable weather conditions to listen for lekking males and to subsequently search for any signs indicating the presence of black grouse including droppings and cast feathers.

Breeding Nightjar

The survey methods to determine the presence and estimate the number of breeding nightjar follow those detailed in Gilbert *et al.* (1998). Survey effort is concentrated on areas of suitable breeding / foraging habitat up to 500 m from the Site boundary during two visits in June and July (this survey was carried out in 2023 and 2024). Suitable habitats include forest clear-fell and pre-thicket plantations and lowland heath. If available, any historical desk study data and information is used to help focus survey effort. In this case there were no specific records of nightjar available but there was knowledge of the likely presence of the species in the Study Area.

Surveyors arrive before dusk (or, for early morning visits, one and a half hours before dawn) and walk the allocated area from about 20 minutes after sunset at a steady pace, stopping every few minutes to listen for 'churring' males (i.e. displaying territorial behaviour and indicative of breeding activity). The aim is to get to within about 100 m of each part of the survey area where practicable by walking the area in a systematic way, either in parallel transects or following field edges or plantation paths and boundaries.

The position of all churring nightjars, or other relevant field signs seen or heard, is marked on a map using a target number for each bird. Surveyors note simultaneously churring males by joining their positions on the map with a dotted line. If churring is heard from two locations more than 400 m apart but not simultaneously (i.e. at least 30 seconds apart), this is recorded as two different territorial males (following the protocols adopted for the 2004 national survey). Otherwise, surveyors recorded this activity as the same male that had moved location, indicating the direction in which a bird has moved with arrowed lines.

Winter Waterbirds & Raptors

Winter surveys for waterbirds (e.g. swans, geese, ducks, waders, gulls) include waterbody counts, following the Wetland Bird Survey methodology set out in Gilbert *et al.* (1998), completed approximately twice per month for various waterbodies and open fields in the survey area for grazing (September to mid-May).

Surveys for winter roosting activity by scarce raptor species, such as hen harrier, follow the methods detailed in Gilbert *et al*. (1998), and involve monthly visits at dusk or dawn to potentially suitable habitats, monitored from carefully chosen vantage points that avoid the risk of disturbance to the potential or known roost site, during the period October to March.

Flight Activity Surveys

Information on bird flight activity is collected during watches from fixed, strategically located vantage points (VPs). The VP locations have been carefully selected to ensure good visual coverage of the proposed wind turbine locations. Ideally all VPs should be located outside the potential turbine area to reduce 'observer effect', which may influence bird behaviour and thereby distort the survey results. Where this is not practicable then any VP locations that could be within the proposed wind turbine area are monitored from other VPs when the surveyor is not present.

During flight activity surveys the use of the Site by birds of conservation concern (breeding and non-breeding) is recorded, with a particular focus on key species considered to be vulnerable to wind farm development. The proportion of time that birds spend flying at different elevations relative to the potential turbine blade swept height is recorded by the surveyor. The survey results are used to identify any apparent flight corridors, and areas of relatively high flight activity, which are treated as constraints in the wind farm design process and to provide quantitative data for the collision risk model that generates estimates of annual collision risk to inform the EIA process.

During flight activity surveys, surveyors preferentially monitor activity by more sensitive species/groups, with species divided into three groups in descending order of comparative sensitivity, as follows:

- Target Species / Groups: All wildfowl (e.g. whooper swan, greylag goose, pink-footed goose), black grouse, nightjar, lapwing, golden plover, curlew, osprey, goshawk, hen harrier, short-eared owl, merlin and peregrine;
- Secondary Species / Groups: All other raptor and wader species apart from common buzzard. All other wildfowl, gulls and other water birds; and
- Other bird species.

Target species are those considered to be of relatively high conservation concern and sensitivity to wind turbines. This list is based on guidance on the sensitivity of different bird species to wind farm development (e.g. NatureScot), the location of the proposed development relative to the known breeding or winter range of the species, and the presence of potentially suitable habitats for the species within and adjacent to the Site. Observers preferentially record target species when both target and secondary species are present in their field of view.

8.3.5.3 SURVEY LIMITATIONS

The following provides a summary of survey limitations in relation to land access constraints and potential land management activities that may have influenced bird behaviour during the survey period. Land access constraints meant that some of the preferred VP locations outside the Site boundary could not be used (e.g. at Hartside, South of Raylees, and near Harwood House) and other alternatives had to be found within the Site boundary to achieve coverage of the potential wind turbine area.

Effective viewshed coverage, in parts of the Site, was also affected by the presence of mature forestry coupes, which restrict visibility of the potential

turbine blade swept volume[129]. This was particularly an issue for Raylees plantation area. For example, there was a gap in coverage within the central part of Raylees due to a strip of mature conifer trees blocking views from VP 2 to the east. However, this is not considered to be a significant limitation taking into account the combined coverage from all four VPs that have overlapping viewsheds within Raylees plantation (i.e. VPs 1, 2, 3 and 4, see **Figure 8.3**).

There were some limitations to the breeding bird survey effort during 2023 and 2024 in relation to accessing private third-party land (see the areas highlighted on **Figure 8.2**). Where access was restricted in this way, surveyors monitored the area from the nearest accessible location or from adjacent public roads and footpaths (e.g. ad hoc vantage points to monitor for breeding raptor activity). Surveyors were instructed to highlight any areas where access restrictions affected the accuracy of the surveys and where permission to survey from third-party landowners should be sought. Periodic rock blasting (i.e. several times per day during the working week) occurred at South Nick and Darney Crag quarries, located to the south of Raylees plantation, during the 2023 and 2024 breeding bird surveys. Although there was no direct evidence of disturbance, it is possible that the blasting influenced breeding activity of some raptor species, such as kestrel and peregrine.

In conclusion, whilst there were some unavoidable limitations to some aspects of the field surveys, the baseline data, supplemented with the information derived from the desk study, is sufficiently extensive and detailed to identify and accurately characterise the use of the Site by the key species.

8.3.5.4 FLIGHT ACTIVITY SURVEY

Flight activity surveys were carried out continuously between March 2023 and March 2025. A total of 12 VPs were established (2 of which exclusively covered the Harwood Forest area, which has now been excluded from the Proposed Development) with a total of 144 hours of observation completed from 11 VPs and 138 hours from 1 VP which was established in April 2023. Details of the flight activity survey effort, including timings and weather conditions will be provided in a Technical Appendix to the ES.

Summary - March to August 2023

During this period the most frequently observed raptor species (excluding common buzzard) was common kestrel, with 175 flights (comprising 192 birds)

[129] The presence of tall trees screening visibility from VPs is not accounted for in the viewshed modelling and mapping.

recorded. This was approximately 47% of the total number of flightlines by all species. The next most frequently recorded target species was curlew with a total of 78 flights (comprising 107 birds) and approximately 20% of the total flightlines recorded. Activity was closely associated with display flights near to breeding territories, which are located across the moorland and enclosed pasture areas within the Site. A total of 34 golden plover flights were recorded (mostly during the early part of this survey period) comprising moderate to large flocks (totalling 1715 birds) with a locus for this activity associated with the more elevated parts of the site away from woodland, such as Mount Gilbert, Ottercops Moss and Todcrag Moss.

There was also a moderate level of flight activity of lesser black-backed gull (22 flights, 41 birds, c. 6% of all flights). Also, goshawk (8 flights, 14 birds), merlin (10 flights, 11 birds), and peregrine (9 flights, 9 birds). There were only seven goose and two swan flights recorded.

Summary - September 2023 to February 2024

During this period, the flight activity survey recorded use of the Site by various post-breeding raptor species. The most frequently observed target species during the September 2023 to February 2024 flight activity surveys was common kestrel with 87 flights (90 birds), corresponding to approximately 35% of the total flightlines recorded. A total of 67 golden plover flights (5750 birds) corresponding to approximately 27% of the total flights recorded, and 27 sparrowhawk flights (29 birds) corresponding to approximately 11% of the total flightlines recorded, and a total of 14 goshawk flights (17 birds) corresponding to approximately 6% of the total flightlines recorded.

Summary - March to August 2024

The most frequently observed target species during the March 2024 to August 2024 flight activity surveys was common kestrel with 165 flights (185 birds), corresponding to approximately 44% of the total flightlines recorded. A total of 28 golden plover flights (2156 birds) corresponding to approximately 7% of the total flights recorded, and 45 curlew flights (62 birds) corresponding to approximately 12% of the total flightlines recorded, 12 goshawk flights (15 birds) and a total of 11 lesser black-backed gull flights (36 birds).

Summary - September 2024 to March 2025

The most frequently observed target species during the September 2024 to March 2025 flight activity surveys was common kestrel with 63 flights (63 birds), corresponding to approximately 30% of the total flightlines recorded. A

total of 55 golden plover flights (3789 birds) corresponding to approximately 26% of the total flights recorded, and 15 pink-footed goose flights (673 birds) corresponding to approximately 7% of the total flightlines recorded, and 10 hen harrier flights (11 birds) were also recorded.

Flight activity over the proposed wind turbine areas by target species was moderate overall, with most of the flight activity being from waders including golden plover and curlew. There were few flightlines of spring passage swans and geese, including pink-footed geese (*Anser brachyrhynchus*) and greylag geese (*Anser anser*), although several flightlines were within the collision risk height band. There were several foraging flights from notable raptor species including goshawk, merlin, peregrine and hen harrier. Also, many flights of common kestrel were concentrated over the moorland and open forestry areas of the survey area. There was a low level of evidence of geese, swans or gulls over-flying the main Study Area during the spring passage period. There were no records of any notable daily commuting flights between roosting and feeding/foraging areas.

8.3.5.5 BREEDING BIRD SURVEYS

Surveys completed between March 2023 and March 2025 recorded breeding attempts by scarce raptor species within the survey area. These include goshawk, merlin and peregrine (further detail will be provided in a Confidential Annex to the ES). There was also evidence of breeding barn owl within the wider Study Area. Desk study evidence suggests a history of breeding of these species within the Study Area, including historical evidence of hen harrier and short-eared owl. Other raptor and owl species recorded as breeding within the survey area include kestrel, sparrowhawk, common buzzard, long-eared owl (*Asio otus*) and tawny owl (*Strix aluco*).

A population of breeding nightjar was recorded in 2023 and 2024 associated with sheltered, recently clear-felled or younger (pre-canopy closure) forestry within the conifer plantation at Raylees and in Harwood Forest to the north and east of the Site. The Site is considered to support a nightjar breeding population of regional importance based on the latest available regional population estimate of 350 in 2004 (Conway *et al.* 2007[130]) for North East England.

[130] Conway, G., Wotton, S., Henderson, I., Langston, R., Drewitt, A., & Currie, F. (2007). Status and distribution of European Nightjars *Caprimulgus europaeus* in the UK in 2004, Bird Study, 54:1, 98-111, DOI: 10.1080/00063650709461461.

Breeding waders were concentrated within suitable moorland and grassland habitats across the Site. The local breeding population of curlew, associated with the Site and surrounding survey area, is likely to be of regional importance. Also, lapwing, common redshank, common sandpiper and common snipe were recorded as breeding.

The breeding moorland bird surveys carried out also revealed the presence of a range of widespread and commonly occurring passerines that are considered to be typical of the types of habitats present (open moorland, woodlands, farmland and coniferous plantation). A number of species whose populations are of high conservation concern at a national level were recorded, including skylark (*Alauda arvensis*), meadow pipit, cuckoo, house martin (*Delichon urbicum*), grasshopper warbler (*Locustella naevia*), mistle thrush (*Turdus viscivorus),* spotted flycatcher, whinchat, tree sparrow (*Passer montanus*) and house sparrow (*Passer domesticus*). Common crossbills (*Loxia curvirostra*) were also regularly observed during surveys and are considered very likely to be breeding in suitable forest habitat within the survey area.

Although suitable habitat for black grouse exists within the Study Area, no evidence of the presence of this species was recorded within the survey area during the 2023 to 2025 surveys, on this basis it has been concluded that the survey area does not currently support a black grouse population.

Flocks of golden plover were recorded on spring passage, and also post-breeding flocks passing over the Site, with parts of the central areas of the Site acting as temporary roosting areas. Dotterel were also recorded in low number during this spring passage period.

8.3.5.6 WILDFOWL / WINTERING BIRD SURVEYS

Although goose and swan wintering sites (roosting and foraging) are present in the Cable Corridor Options Study Area (e.g. Sweethope Lough), there were no regular or significant numbers of any spring or autumn passage wild geese or swan species such as pink-footed goose or whooper swan (*Cygnus cygnus*) recorded passing over the Site at collision risk height during the flight activity surveys.

There was no evidence during other surveys completed during 2023-25 to indicate that the Site and surrounding areas attract significant numbers of migratory wild geese or swans.

8.3.5.7 ONGOING / PROPOSED SURVEYS

The Site

Additional survey effort in relation to for roosting activity by wintering scarce raptors commenced in September 2025 and was completed in March 2026. Surveys for scarce breeding raptors, following the methods outlined above for the 2023 and 2024 surveys, are also being updated during March to July 2026. The full results will be considered in the EIA and reported in a technical appendix to the Ornithology ES Chapter. Sensitive information relating to breeding or roosting sites of species listed on Schedule 1 of the WCA will be restricted to a confidential annex to the ES.

Cable Corridor Options Surveys

The Cable Corridor Options were first defined in early 2026, consequently No baseline ornithological surveys of the Cable Corridor Options have been completed to date. Surveys of the Cable Corridor Option corridors are proposed to be carried out, during the period April 2026 and May 2027, to assess the use of all habitats within all of the Cable Corridor Options by breeding and non-breeding birds with a particular focus on species that are potentially sensitive to overhead powerline development and are also of conservation concern (i.e. species listed on Annex I of the EC Birds Directive, Schedule 1 of the WCA, species on the UK Red List of birds of conservation concern).

A suite of ornithological surveys over the period of one year are proposed to be completed to inform the design and assessment of the Cable Corridor Options. In summary, the following surveys are proposed:

- An initial reconnaissance (including drive and walkover) survey in March / April 2026, of all the Cable Corridor Options to set up potential vantage point locations, highlight any hotspots for raptors, waders, black grouse, gulls and wildfowl activity in preparation for further surveys below;
- Bird Flight Activity Surveys, 36 hours of observation per season (summer and winter) from each vantage point (VPs to be confirmed following initial site reconnaissance visit), to systematically quantify the use of the Cable Corridor Options, focusing on sections where overhead lines are likely to be required, between April 2026 and March 2027;
- Breeding Bird Surveys, following the methods previously outlined, focusing on a 1km wide corridor centred on the Cable Corridor Options. A range of surveys will be completed to determine the presence and approximate location of breeding territories/sites within the survey area, including the following:

- Breeding wader and songbird surveys during April to July 2026;
- Breeding scarce raptor surveys, focusing on species listed on Schedule 1 of the WCA, within suitable habitats in the survey area during 2026; and;
- Black grouse reconnaissance and lek surveys (if necessary) in Spring of 2026 within suitable habitats of the core survey area; and
- Breeding nightjar surveys (June to mid-July) 2026;

- Wintering bird surveys to assess the use of the Cable Corridor Options by passage and wintering swans, geese, gulls, scarce raptors and waders (April to mid-May 2026, September 2026 to May 2027).

8.4 POTENTIAL IMPACTS AND LIKELY SIGNIFICANT EFFECTS

8.4.1 POTENTIAL IMPACTS

The potential impacts on ornithological receptors arising from a wind farm development (including proposed turbines, access tracks, BESS, and associated infrastructure), that can lead to a likely significant effect, can be broadly summarised as follows:

- Construction:
  - Short-term disturbance and displacement; and
  - Indirect impacts e.g. disruption to habitat function, effects on prey.
- Operation:
  - Collision with the turbine towers, blades (moving or stationary) and/or associated infrastructure;
  - Disturbance (within and around the turbine envelope) and displacement (of birds due to loss of suitable feeding, roosting, breeding, or wintering habitat);
  - Barrier effects to dispersal, regular movements or migration of birds; and
  - Indirect effects e.g. disruption to habitat function, effects on prey.
- Decommissioning:
  - Short-term disturbance and displacement.

The potential impacts on ornithological receptors arising from an overhead line, that can lead to a likely significant effect, can be broadly summarised as follows:

- Construction:

- Short-term disturbance and displacement; and
- Indirect effects e.g. disruption to habitat function, effects on prey.

- Operation:
  - Collision with overhead lines and/or associated infrastructure and electrocution mortality;
  - Disturbance and displacement (of birds due to loss of suitable feeding, roosting, breeding, or wintering habitat);
  - Barrier effects to dispersal, regular movements or migration of birds; and
  - Indirect effects e.g. disruption to habitat function, effects on prey.
- Decommissioning:
  - Short-term disturbance and displacement.

Likely significant effects arising from tree felling to accommodate the proposed wind farm and proposed Cable Corridor Options and any proposed changes to existing forest felling plans and management (also consideration of any interactions from felling and forest management on other likely significant effects as listed above) will also be fully considered in the assessment.

8.5 ASSESSMENT METHODOLOGY

8.5.1 INTRODUCTION

The assessment of the likely significant effects on sensitive bird receptors from development projects is a process that can be summarised as a series of stages, as follows:

- identifying the ornithological receptors that could be significantly affected by the Proposed Development (effectively part of scoping);
- evaluating the importance (i.e. importance at the relevant geographical scale, also referred to as receptor 'sensitivity') of the receptor informed by data from baseline surveys and other appropriate sources;
- identifying and systematically characterising impacts and their likely significant effects (wherever practicable based on best available scientific evidence), noting any uncertainties and taking a precautionary approach as appropriate;
- incorporating measures to avoid and mitigate negative impacts and likely significant effects;

- assessing the significance of any residual effects after the beneficial effects of any proposed mitigation is taken into account;
- identifying appropriate compensation measures to offset likely significant residual effects; and
- identifying opportunities for BNG (i.e. habitat creation or enhancement that is beneficial to IOF populations).

Bird flight activity data will be collated and analysed to assess the potential risk to individual species of conservation concern from collision mortality, following the methods recommended by NatureScot. A technical appendix to the ES chapter will provide further detail on the source data and the collision risk model calculations. Current NatureScot guidance on bird collision avoidance rates would also be followed in the analysis.

The EIA will be carried out using a set of standardised 'impact categories' that describe the scales at which an impact can occur and its subsequent effect(s) and significance. These impact categories have been developed following best practice guidance, informed professional judgement and practitioner experience of the EIA process. The likely significant effects that the development (construction and operation) would have on IOFs will be assessed (via impact magnitude and severity) for their potential to be significant (see below for further details). All relevant limitations and uncertainties discussed and accounted for in the assessment (e.g. assuming realistic maximum design scenario where there is uncertainty about the potential magnitude of an effect or efficacy of a proposed mitigation measure).

Likely significant cumulative effects will also be considered in the EIA, following the approach set out in current CIEEM[131] and Natural England[132] guidance, both of which broadly follows the NatureScot guidance on cumulative assessment. All relevant wind farm projects formally lodged within the planning process and for which sufficient ornithological data is available, within the spatial and temporal potential 'Zone of Influence' (ZoI) of the Proposed Development will be considered in the cumulative assessment. Wind farms considered will include developments under construction, consented developments awaiting implementation and proposals awaiting determination

[131] CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland

[132] UK Government (2024) Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment. Available online at: https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-cumulative-effects-assessment

within the planning process with design information in the public domain. Sites at screening and scoping stage will not be considered as part of the cumulative assessment as the information relating to these is likely to be limited and subject to change when submitted for determination. Existing wind farms will be considered as part of the main assessment as they feature within the baseline conditions within the Study Area.

The ZoI will be established following relevant guidance (CIEEM 2018). The ZoI is the area over which IOFs may be affected by biophysical changes as a result of the Proposed Development. This is typically defined by species-specific core foraging ranges rather than fixed distances and the potential for cumulative disturbance with other projects, particularly during construction and operational phases. For this EIA it is proposed that a nominal 10 km Study Area is used, based on a 5 km wide buffer around the Proposed Development and a similar buffer around potential cumulative projects in the wider area. This will be the basis for the cumulative assessment on IOF populations in the wider countryside (i.e. excluding consideration of populations associated with designated sites such as SPAs). As discussed above, in relation to populations that form the qualifying interest of SPAs in the wider region, the potential ZoI (i.e. 'connectivity') is defined by NatureScot guidance on maximum foraging ranges (see **Section 8.2.4**).

8.5.2 DESK STUDY & CONSULTATIONS

A more extensive desk study will be undertaken to request and collate available ornithological records and other data for the Study Area from a range of sources including:

- The Royal Society for the Protection of Birds (RSPB);
- Regional bird groups which may include: Northern England Raptor Forum / Northumbria Ringing Group / Northumberland and the Tyneside Bird Club;
- Northumberland local bird recorder;
- British Trust for Ornithology;
- Wildfowl & Wetlands Trust; and
- Environmental Records Information Centre (ERIC) North East.

The information collated from the desk study will be used to help inform, in combination with data from the baseline surveys, the wind farm design process as well as the assessment of likely significant effects of the Proposed Development.

Where available, the results of bird surveys completed for other proposed wind farms in the area will be reviewed and referred to, where relevant, during the EIA process.

8.5.3 IMPORTANT ORNITHOLOGICAL FEATURES

Focus will be given in the assessment to bird species whose populations are of conservation concern (in a regional, national or international context), that are subject to specific legal protection, and that are considered to be particularly vulnerable to impacts from wind farm development, these include:

- Bird species of conservation concern listed on Annex I of European Council Directive 2009/147/EC on the Conservation of Wild Birds, in particular those that may be associated with populations of species that are qualifying interests of Special Protection Areas in the wider region;
- Bird species listed in Schedule 1 to the WCA; and
- Bird species of national or regional conservation concern, not included within the above categories, but that are present within the Study Area in nationally or regionally important numbers and are sensitive to the potential impacts of the Proposed Development.

Table 8.3 provides a list of the species that are likely to be the focus of the impact assessment (i.e. as important ornithological features). These species have been selected based on the results of desk study and surveys completed to date, their conservation status / relative rarity of their populations, potential vulnerability to the impacts of onshore wind farm development, the suitability of habitats within the Study Area and their breeding / wintering ranges (i.e. the likelihood of the species being present in the Study Area). This table also includes a summary of the current conservation status, nature conservation policy and legal designations for each species.

TABLE 8.3 KEY BIRD SPECIES, THEIR CONSERVATION STATUS AND OTHER RELEVANT DESIGNATIONS

Common Name	Scientific Name	UK BoCC Status[i]	Taxon Designations
Greylag goose	*Anser anser*	Amber	CMS App. 2[ii]
Pink-footed goose	*Anser brachyrhynchus*	Amber	CMS App. 2[ii]
Whooper swan	*Cygnus cygnus*	Amber	Ann. I[iii], Sch. 1[iv], CMS App. 2[ii]

Common Name	Scientific Name	UK BoCC Status[i]	Taxon Designations
Nightjar	*Caprimulgus europaeus*	Amber	Ann. I[iii], Sch. 1[iv], UK BAP[v]
Lapwing	*Vanellus vanellus*	Red	UK BAP[v], CMS App. 2[ii]
Golden plover	*Pluvialis apricaria*	Green	Ann. I[iii], CMS App. 2[ii]
Curlew	*Numenius arquata*	Red	UK BAP[v], CMS App. 2[ii]
Osprey	*Pandion haliaetus*	Amber	Ann. I[iii], Sch. 1[iv], CMS App. 2[ii]
Goshawk	*Accipiter gentilis*	Green	Sch. 1[iv], CMS App. 2[ii]
Hen harrier	*Circus cyaneus*	Red	Ann. I[iii], Sch. 1[iv], CMS App. 2[ii]
Short-eared owl	*Asio flammeus*	Amber	Ann. I[iii]
Merlin	*Falco columbarius*	Red	Ann. I[iii], Sch. 1[iv], CMS App. 2[ii]
Peregrine	*Falco peregrinus*	Green	Ann. I[iii], Sch. 1[iv], CMS App. 2[ii]

i. Birds of Conservation Concern (BoCC) in the UK (Stanbury *et al.* 2021). The population status of birds regularly found in the UK is reviewed every five years to provide an up-to-date assessment of conservation priorities. Quantitative criteria are used to assess the population status of each species and to place it on the Red, Amber or Green list. These are global conservation status, recent decline, historical decline, European conservation status, rare breeders, localised species and international importance.
ii. Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention or CMS) adopted in Bonn, Germany in 1979. Signatory parties work together to conserve migratory species and their habitats by providing strict protection for endangered migratory species (listed in Appendix 1 of the Convention), concluding multilateral Agreements for the conservation and management of migratory species which require or would benefit from international cooperation (listed in Appendix 2).
iii. Species listed on Annex I of the EC Birds Directive (Directive 2009/147/EC on the conservation of wild birds - the codified version). These species are the subject of special conservation measures concerning their habitat, to ensure their survival and reproduction within their area of distribution.
iv. Species listed on Schedule 1 to the WCA. All wild birds their nests eggs and dependant young are protected under the WCA. Schedule 1 species receive additional legal protection under the Act.
v. Priority species in the 2007 UK Biodiversity Action Plan (UK). The UK BAP was superseded by the UK Post-2010 Biodiversity Framework (JNCC 2012). This was then superseded by the UK Biodiversity Framework in May 2024.

8.5.4 SENSITIVITY OF IOFS

A summary description of the existing baseline ornithological interest of the Study Area will be referred to in the ES chapter along with the assessment of the likely significant effects of the Proposed Development on the IOFs. Detailed

technical description and discussion of the baseline data will be provided in separate technical appendices to the ES.

The nature conservation value / sensitivity of the receptors will be assessed using current best practice EIA methodology (e.g. in accordance with relevant and current NatureScot and CIEEM guidance). The evaluations and effect assessments will be undertaken based on the field survey information collated, augmented with information available from the desk study.

Assigning a level of sensitivity to an IOF requires consideration of a number of factors. Sensitivity is typically defined by consideration of international and / or national conservation status and relative rarity at different geographical scales (e.g. local, regional, national, international) and estimates of population size within the Study Area (or importance of the habitats within the Study Area in providing critical supporting habitat to populations present in the wider area). Where there is uncertainty about the accuracy of the available information used to inform judgements on receptor sensitivity a precautionary approach will be adopted to reduce the risk of under-valuing any feature.

Explanatory definitions of ornithological feature sensitivity (populations and supporting habitats) are given in **Table 8.4,** below.

TABLE 8.4 OUTLINE CRITERIA FOR IOF SENSITIVITY EVALUATION

Feature Importance	Example Definition / Criteria
Very High (international importance)	Habitats or species that form part of the cited interest of an internationally protected site or candidate site (for example, SPA, Ramsar site). Bird species listed on Annex I of the EC Birds Directive if present in qualifying numbers/proportions of the national/international population.
High (national importance)	A nationally designated site (e.g. SSSI, National Nature Reserve) and the habitats and species that form its cited interest. Regularly occurring, but rare bird species (for example, < 300 breeding pairs in the UK). Birds present in nationally important numbers (for example, > 1% of the UK population). A site that provides critical habitat for any regularly occurring bird population of national importance, which is also considered a rare species in the UK.
Medium (regional importance)	Any regularly occurring population of a nationally important bird species which is threatened or rare in the

Feature Importance	Example Definition / Criteria
	region (for example, > 1% of the regional population) population where reliable estimates are available). Regularly occurring, regionally important population of bird species listed on the current UK Red list, presence of regionally important habitats critical to such species.
Low (Sub-regional / Local)	High Local: Sites with an identified ornithological interest meeting the criteria for Council area designation (such as Site of Importance for Nature Conservation), Local Wildlife Sites, which may include amenity and educational criteria in urban areas. Designated Local Nature Reserves. Any regularly occurring, locally significant population of bird species and their supporting habitats.
	Medium Local: A population of a species or assemblage of species which are not considered to qualify for non-statutory designation, but which are considered locally important (i.e. approx. 10 km radius from the Site). Populations and supporting habitats of any bird species of conservation importance in the context of the local area (i.e. approx. 10 km radius from the Site).
	Low Local: A population of a species or assemblage of species which are not considered to qualify for non-statutory designation, but which are considered locally important in the context of the immediate surrounding area. Populations and supporting habitats of any bird species of conservation importance in the context of the immediate surrounding area.

Sensitivity in relation to IOF population size is typically based on the estimated proportion supported by the Site (or zone of influence) in comparison to the wider geographical population. Where 1 % of the bird population for a given geographical scale is regularly present within the Site it is considered to be important for that species and spatial scale. The 1 % criterion for importance is well-established and can be applied at the national, regional, sub-regional or local scales.

Current and accurate information on population sizes below the national level may not be available for some species. The evaluation of regional, sub-regional, and local importance must, therefore, often be based on the available information and professional judgement. Where there is uncertainty about the accuracy of the available information, a precautionary approach has been

adopted to reduce the risk of under-estimating the importance of the Study Area for any species

8.5.5 EFFECT CHARACTERISATION

In the assessment, 'impacts' are defined as actions associated with the construction or operation/implementation of the Proposed Development that result, directly or indirectly, in a material effect on an IOF. 'Effects' are defined as the consequences of the impact, which may be varied, for the IOF under consideration.

Effects are considered to include those that cause direct, indirect, secondary, cumulative, short-term, medium-term and long-term, permanent and temporary, beneficial and adverse effects on each IOF.

The overall character of an effect is a function of a wide range of variables acting on the feature, which include the following:

- Direction - whether the effect benefits (positive) or harms (negative) the ecological feature;
- Extent - the area affected or potentially affected by a particular impact (e.g. distance over which artificial lighting may affect bird behaviour);
- Magnitude - the amount of a habitat or population affected (quantified, where practicable, as the proportion of the ecological feature lost or affected);
- Complexity - relating to whether an effect is direct or indirect, proximal or distal, immediate or delayed;
- Reversibility - can the effect be reversed, within a reasonable timescale and with a reasonable expectation of recovery, or is it permanent and irreversible;
- Frequency - is the effect acting constantly or intermittently (e.g. occasional noise disturbance in comparison to a longer-term change to the existing baseline levels of disturbance);
- Timing - is the effect occurring during a more or less sensitive period for the ecological feature (e.g. relative to the breeding season);
- Duration - the length of time that the effect is acting on the ecological feature, this may be longer than the associated impact is occurring for and may be short, medium, long-term or permanent (indicative periods for these categories are given in **Table 8.5** below.); and
- Confidence - certain/near-certain, probably, unlikely or extremely unlikely.

The overall effect, considering all of the above factors, for each feature is categorised for each phase of the Proposed Development (i.e., the construction phase, the operational phase and the decommissioning phase). To help illustrate this, summary descriptions of the various effect levels (primarily considering effect magnitude and duration with the relevant geographical context for the feature) are provided in **Table 8.5**, below

TABLE 8.5 DEFINING EFFECT LEVEL

Level of effect	Example Definition / Criteria
Total / Near-Total	Loss of the integrity of the population under consideration, threatening its survival, from a large increase in direct or indirect additive mortality, reduction in productivity immediately affecting its viability / conservation status.
High	Major increase in direct or indirect additive mortality, reduction in productivity, which would affect the populations' long-term viability / conservation status.
Medium	Moderate increase in direct or indirect additive mortality, reduction in productivity, which has the potential to affect the populations' long-term viability / conservation status.
Low	Minor increase in direct or indirect mortality, reduction in productivity, either of sufficiently small-scale or short duration that long-term harm to the status of the population is unlikely.
Negligible / Neutral	A potential impact that is not expected to affect the population in any way (or to have no measurable effect); therefore, no effects are predicted.
Duration	Permanent (>30 years) Long-term (15-30 years or longer) Medium-term (5-15 years) Short-term (<5 years)

Certain species are considered to display greater relative vulnerability to the impacts of wind farm developments than others. Species-specific vulnerability to wind farm development is considered within the impact assessment process (i.e., one of the factors considered in determining the level of effect magnitude) and does not form part of the determination of feature sensitivity, which is undertaken without reference to the development type and impact parameters. Relative vulnerability is determined from the available published

research, monitoring studies and literature reviews that have considered species-specific effects of wind farm development (i.e. displacement, barrier effects, and collision risk).

8.5.6 EFFECT SIGNIFICANCE

Significance is a measure of the importance that should be given to an effect in relation to the consideration of appropriate mitigation and the overall environmental impact of the proposals in decision making with respect to the planning process. Whether an effect is assessed to be 'Significant' has a specific implication in the context of the EIA Regulations and is of key importance in terms of planning consent decision-making. Effects can be significant at a wide range of geographical scales (i.e. from the local level to effects that are of international importance for the feature under consideration) but which result in important consequences for the functioning and/or conservation status of the ornithological feature. In general terms, significance is determined through the interaction between feature sensitivity and the categorised effect level (i.e. taking into account effect extent, duration, reversibility etc.).

For consistency across the EIA, effect significance is reported in categories, from None to Major, through Negligible, Minor and Moderate. For the purposes of this assessment, effects are considered Significant if they are reported as equal to or greater than Moderate. Further detail is provided in the assessment for each feature as to whether effects are potentially significant and at which geographical scale.

For illustrative purposes only, a matrix is provided as **Table 8.6** to indicate how effect level (between Negligible to Major) and feature sensitivity relate to judgements of effect significance. As stated at the beginning of this section, whilst following the systematic assessment process, as set out here, informed professional judgement plays a critical role in the determinations of effect level and significance.

TABLE 8.6 MATRIX ILLUSTRATING THE RELATIONSHIP BETWEEN EFFECT LEVEL, RECEPTOR SENSITIVITY AND SIGNIFICANCE

IOF Sensitivity	**Effect level (significant effects highlighted in bold)**			
	High	**Medium**	**Low**	**Negligible**
Very High	**Major**	**Major**	**Major-Moderate**	Negligible

IOF Sensitivity		Effect level (significant effects highlighted in bold)			
		High	**Medium**	**Low**	**Negligible**
High		**Major**	**Major-Moderate**	**Moderate**	
Medium		**Major-Moderate**	**Moderate**	**Moderate-**Minor	
Low	High	**Moderate**	**Moderate**-Minor	Minor	
	Medium	**Moderate-**Minor	Minor	Minor	
	Low	Minor	Minor	Minor	
Negligible		Negligible			

8.5.7 HABITAT REGULATION ASSESSMENT

Habitats Regulations Assessment is discussed here for reference, but is legally distinct and separate from the EIA Regulations. The Habitats Regulations require an appropriate assessment of any adverse effects on qualifying features of internationally important nature conservation sites that are likely to be significantly affected by a proposed project. These internationally important sites include Special Areas of Conservation (SACs), or candidate SACs (cSACs), Special Protection Areas (SPAs) or potential SPAs (pSPAs), Sites of Community Importance (SCIs) and Ramsar sites. These are often referred to as 'European Sites'. European sites form part of a network of protected sites across the UK known as the national site network (NSN). The Habitat Regulations Assessment (HRA) is the process that determines whether there are any 'likely significant effects' of a project either alone, or in combination with other projects and plans on a European site (screening stage). If a likely significant effect cannot be ruled out then an Appropriate Assessment must be undertaken to determine whether the integrity of the European site will be adversely affected by the project.

As per **Table 8.2** the desk study identified four European Sites (3 SPAs and 1 Ramsar site) within the Study Area.

The nearest Special Protection Area to the Site is Northumbria Coast SPA and the Northumberland Marine SPA, both of which are located c. 28 km to the east of the Site. These SPAs are designated for a wide range of bird species listed on Annex I of the EC Birds Directive whose populations, supported by the

SPA, exceed national and international levels of importance, including Arctic tern (*Sterna paradisaea*), little tern (*Sternula albifrons*), Sandwich tern (*Sterna sandvicensis*), common tern (*Sterna hirundo*) and roseate tern (*Sterna dougallii*). Additionally, these areas are also designated for the assemblage of migratory gulls, waders and cliff nesting seabirds including puffin (*Fratercula arctica*); and guillemot (*Uria aalge*); turnstone (*Arebaria interpres*) and purple sandpiper (*Calidris maritima)* that the SPA supports.

All the qualifying species of these SPAs have a core foraging range below the distance that exists between the SPAs and the Site. Therefore, based on NatureScot guidance on SPA 'connectivity'[133], these designated sites or the bird populations that they support are considered to be at risk of likely significant adverse effects from the Proposed Development (i.e. there is no 'connectivity' between the Proposed Development site and any SPAs and/or Ramsar Sites). On this basis, in relation to the relevant wording in the Habitats Regulations (1994), the Proposed Development would not meet the threshold for a 'likely significant effect' on any SPA's qualifying interests or undermine their conservation objectives. Consequently, no specific additional consideration or special studies (i.e. to inform an 'Appropriate Assessment' under the Habitats Regulations) are anticipated to be required.

The nearest SPA to the Cable Corridor Options is the North Pennine Moors SPA, which is located c. 6.5 km to the southwest of the southern connection point (i.e. Fourstones substation). This SPA is designated for several bird species listed on Annex I of the EC Birds Directive whose breeding populations, supported by the SPA, exceed national and international levels of importance, including hen harrier (*Circus cyaneus*), merlin (*Falco columbarius*), peregrine (*F. peregrinus*) and golden plover (*Pluvialis apricaria*). The Cable Corridor Options are outside of the core breeding range for each of these species, but within the maximum range of hen harrier, peregrine, and golden plover, based on NatureScot SPA connectivity guidance. It is possible that the connection at the southern end of the route, closest to the SPA, would be undergrounded, which would reduce the potential risk to birds in flight associated with the SPA populations. However, as the type of connection has not yet been confirmed, as a reasonable maximum design scenario, this assessment will consider that the whole route will be overhead line. Consultation with Natural England on this aspect is proposed in order to determine whether, in this context, likely

[133] NatureScot (2016) Assessing Connectivity with Special Protection Areas (SPAs). Available online at: https://www.nature.scot/sites/default/files/2022-12/Assessing%20connectivity%20with%20special%20protection%20areas.pdf

significant effects on the North Pennine Moors SPA require specific consideration.

If it is determined that there are no impact pathways to these European Sites, a Habitats Regulations Assessment (HRA) will be considered to not be required. If that is the case, following the Planning Inspectorate advice[70], the information provided to the Competent Authority (in this case the Secretary of State (SoS) for Department for Energy Security and Net Zero (DESNZ)) can take the form of a brief statement confirming that there are no pathways that could lead to likely significant effects on a European site from the Proposed Development.

Information regarding sites designated for ornithological features, and whether they require HRA are discussed in **Chapter 9: Ecology and Nature Conservation.**

8.6 MITIGATION

In relation to wind farm development, appreciable reduction or avoidance in likely significant adverse effects can often be achieved by taking into consideration data on ornithological constraints from site surveys and other sources through the design and best practice construction processes (often referred to as 'embedded mitigation'). Mapped data from the various ornithological surveys have been collated and 'sensitive areas' (e.g. nest sites of Schedule 1 and Annex I species, areas of critical supporting habitat, areas or 'corridors' where there is a regular concentration of flight activity at wind turbine collision risk height) identified with appropriately sized set-back zones, for consideration in developing the wind farm layout. Historical breeding sites (i.e. records of nest locations, territory centres) of Schedule 1 raptor species, have been identified as a design constraint where there is a reasonable expectation that breeding attempts may occur in the future (i.e. where there remain adequate supporting habitat and an extant population in the surrounding area). Nesting scarce raptors including peregrine, have been taken into account as part of the design considerations of the current layout, as have breeding waders such as curlew, and flight activity and roosting hotpots of golden plover.

Where it is not practicable to avoid likely significant adverse effects on sensitive features through design, alternative suitable secondary mitigation measures and monitoring will be proposed where practicable. The appropriate measures will vary depending on the focal habitat or species. In general terms, options that can be considered include the creation or enhancement of habitats

outside of the zone of effect of the proposed wind farm to compensate for losses or displacement from habitats supporting key species resulting from the construction and/or operation of the windfarm.

The Environment Act (2021) Section 99 indicates that "*Schedule 15*[134] *makes provision about biodiversity gain in relation to development consent for nationally significant infrastructure."* This is expected to be mandatory for NSIP projects from 02 November 2026[135] and will mean applications will be required to achieve 10 % Biodiversity Net Gain (BNG). Further guidance will be published by the UK Government in May 2026.

The Proposed Development is committed to achieving over 10 % Biodiversity Net Gain through habitat retention, enhancement and creation. Further discussion of this aspect of the project is provided in **Chapter 9** (**Section 9.5.5).**

A draft Habitat Management and Monitoring Plan will be prepared, for submission with the application, that will detail the proposed measures and include consideration, where appropriate, to create and enhance habitats for key bird species, in suitable locations away from the proposed wind turbines, a draft of which will be submitted as part of the application.

8.7 SCOPE OF THE ES CHAPTER

8.7.1 PRE-SCOPING CONSULTATION

There has been no pre-scoping consultation with Natural England with respect to the ornithological surveys or impact assessment. Natural England and all other relevant consultees and stakeholders will be consulted as part of the assessment and their responses will be taken into account in preparing the ES. Standing advice on wind farm EIA methods, ornithological survey methods and survey effort have been followed.

8.7.2 MATTERS SCOPED OUT

Based on NatureScot SPA connectivity guidance, and the distance from the Proposed Development to SPAs in the wider region (e.g. the North Pennine Moors SPA, Northumbria Coast SPA) there is considered to be no 'likely

[134] UK Government (2021) Environment Act 2021. Available online at: Environment Act 2021.
[135] UK Government (2025) Government response and summary of responses. Available online at: https://www.gov.uk/government/consultations/improving-the-implementation-of-biodiversity-net-gain-for-minor-medium-and-brownfield-development/outcome/government-response-and-summary-of-responses

significant effect’ on any population of species that form the qualifying interest of any SPA.

The EIA will not consider likely significant effects on common woodland bird species or widespread moorland species such as skylark (*Alauda arvensis*) and meadow pipit (*Anthus pratensis*).

Table 8.7 contains a list of issues relating to ornithology that will be scoped in or out of the assessment.

TABLE 8.7 ENVIONMENTAL FACTORS TO BE SCOPED IN OR OUT OF THE ASSESSMENT

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
Northumbria Coast SPA	Scoped out	Based on NatureScot SPA connectivity guidance, and the distance from the Proposed Development to the Northumbria Coast SPAs there is considered to be no 'likely significant effect' on any population of species that form the qualifying interest of the SPA. Consequently, no specific additional consideration or special are anticipated to be required in relation to the Proposed Development. Northumbria Coast SPA is therefore scoped out and will no further consideration of the likely significant effects on this SPA would be referred to within the ES.
North Pennine Moors SPA	Scoped out in relation to the Site	Based on NatureScot SPA connectivity guidance, and the distance from the Site to the North Pennine Moors SPA, there is considered to be no 'likely significant effect' on any population of species that form the qualifying interest of any SPA. Consequently, no specific additional consideration or special are anticipated to be required in relation to the Proposed Development. North Pennine Moors SPA is therefore scoped out and will no further consideration of the likely significant effects on this SPA would be referred to within the ES.
North Pennine Moors SPA	Scoped in in relation to the Cable Corridor Options only.	The nearest SPA to the proposed Cable Corridor Options is the North Pennine Moors SPA, which is

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
		located c. 6.5 km to the southwest of the southern connection point (i.e. Fourstones substation). This SPA is designated for several bird species listed on Annex I of the EC Birds Directive whose breeding populations, supported by the SPA, exceed national and international levels of importance, including hen harrier (*Circus cyaneus*), merlin (*Falco columbarius*), peregrine (F. peregrinus) and golden plover (*Pluvialis apricaria*). The Cable Corridor Options are outside of the core breeding range for each of these species, but within the maximum range of hen harrier, peregrine, and golden plover, based on NatureScot SPA connectivity guidance. It is likely that the connection at the southern end of the route, closest to the SPA, would be undergrounded, which would reduce the potential risk to birds in flight associated with the SPA populations. Consultation with Natural England on this aspect of the project is proposed in order to determine whether, in this context, likely significant effects on the North Pennine Moors SPA require specific consideration in the EIA.
Key species (likely 'Important Ornithological Receptors' for the EIA, see **Table 8.2**)	Scoped in	The EIA will consider the range of likely significant effects from the Proposed Development (construction, operational and decommissioning phases and likely significant cumulative effects) on the populations of species listed in **Table 8.2.**

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
Common woodland bird species or widespread moorland species such as skylark (*Alauda arvensis*) and meadow pipit (*Anthus pratensis*)	Scoped out	The EIA will not consider likely significant effects from the Proposed Development on common woodland bird species or widespread moorland species such as skylark and meadow pipit. Guidance from NatureScot (2025) suggests that surveys for common passerines are generally not required for EIA of onshore wind farms. The potential for significant adverse effects to occur to these species even in a sub-regional / local population context (i.e. adverse effects that could result in meaningful changes to population size, distribution or important metrics, such as annual mortality rates,) is considered to be negligible.

8.8 CONSULTATION AND SCOPING QUESTIONS

Consultation will be undertaken with the following statutory consultees:

- Natural England; and
- Northumberland County Council.

Consultation will be sought with the following non-statutory organisations

- RSPB;
- BTO; and
- Local Raptor and Ringing Groups.

The following questions are proposed to ensure that the approach to the EIA, as set out in this chapter, is robust and to the satisfaction of the determining authorities:

- Q8 1: Are consultees content with the proposed methods for assessment? Have all ornithological receptors and potential impacts that could result from the Proposed Development been identified?
- Q8 2: Are consultees content with the extent of datasets obtained as part of the desk study?
- Q8 3: Are consultees content with the scope of the completed and proposed surveys, taking into consideration the Site location and Cable Corridor Options, survey results collated to date and relevant contextual data from other sources?
- Q8.4: Are consultees in agreement with what has been scoped in / out of the assessment and described above? Does the consultee agree with the list of key species for consideration in the EIA, and are there other species that should also be considered?

9. ECOLOGY AND NATURE CONSERVATION

9.1 INTRODUCTION

This chapter outlines the ecology and nature conservation receptors of relevance to the EIA and details the proposed approach to assessing the likely significant effects of the Proposed Development on the receiving environment.

This chapter is supported by the following figures:

- Figure 9.1 Ecological Study Area (see **Section 9.3.1**)
- Figure 9.2 Designated Sites within 5 km of the Scoping Boundary
- Figure 9.3 UK Habitat Classification Survey results

This chapter does not include ornithological interests, which are addressed in **Chapter 8: Ornithology**.

9.2 LEGISLATION, POLICY AND GUIDANCE

9.2.1 LEGISLATION

- The Conservation of Habitats and Species Regulations 2017 ('Habitat Regulations')[136] [137]
- The Environment Act 2021[138]
- The Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024[139]
- The Wildlife and Countryside Act 1981 (as amended)[140]
- Countryside and Rights of Way Act 2000[141]
- The Natural Environment and Rural Communities (NERC) Act 2006[142];

[136] UK Government (2017) The Conservation of Habitats and Species Regulations. Available online at: The Conservation of Habitats and Species Regulations 2017
[137] UK Government (2019) The Conservation of Habitat and Species (Amendment) (EU Exit). Available online at: The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019
[138] UK Government (2021) Environment Act. Available online at: https://www.legislation.gov.uk/ukpga/2021/30.
[139] UK Government (2024) The Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024. Available online at: https://www.legislation.gov.uk/uksi/2024/48/contents/made.
[140] HM Government (1981) *Wildlife and Countryside Act 1981 (as amended).* Available online at: Wildlife and Countryside Act 1981
[141] UK Government (2000) The Countryside and Rights of Way Act 2000. Available online at: https://www.legislation.gov.uk/ukpga/2000/37/contents.
[142] Natural Environment and Rural Communities Act 2006. Available online at: http://www.legislation.gov.uk/ukpga/2006/16/contents

- The Hedgerow Regulations 1997[143]
- UK Biodiversity Framework (2024)[144]
- The Protection of Badgers Act 1992[145]
- The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017[146]
- The Management of Hedgerows (England) Regulations 2024[147]

9.2.2 NATIONAL PLANNING POLICY

9.2.2.1 NATIONAL POLICY STATEMENTS

The energy National Policy Statements (NPSs), EN-1 – EN-6, outline the government's policy for delivering major energy infrastructure. The NPSs that are of relevance to the Proposed Development are:

- Overarching National Policy Statement for Energy (2025) (EN-1)[148]
- National Policy Statement for Renewable Energy Infrastructure (2025) (EN-3)[149]
- National Policy Statement for Electricity Networks Infrastructure (2025) (EN-5)[150]

[143] HM Government (1997) *The Hedgerow Regulations 1997*. Available online at: The Hedgerows Regulations 1997
[144] Joint Nature Conservation Committee (JNCC) on behalf of the Four Countries Biodiversity Group (4CBG)(2010) UK Biodiversity Framework. Available online at: UK Biodiversity Framework
[145] HM Government (1992) Protection of Badgers Act 1992. Available online at: ukpga_19920051_en.pdf
[146] HM Government (2017) The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. Available online at: The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017
[147] HM Government (2024) Management of Hedgerows (England) Regulations 2024. Available online at: The Management of Hedgerows (England) Regulations 2024
[148] Department for Energy Security and Net Zero (December 2025) Overarching National Policy Statement for Energy (EN-1). Available online at: Overarching National Policy Statement for Energy (EN-1) – December 2025
[149] Department for Energy Security and Net Zero (December 2025) Overarching National Policy Statement for Renewable Energy Infrastructure (EN-3). Available online at: National Policy Statement for Renewable Energy Infrastructure (EN-3)
[150] Department for Energy Security and Net Zero (December 2025) Overarching National Policy Statement for Electricity Networks Infrastructure (EN-5). Available online at: National Policy Statement for Electricity Networks Infrastructure (EN-5) – December 2025

Details of specific policies within EN-1, EN-3 and EN-5 that are considered relevant to ecology are set out in **Table 9.1.**

TABLE 9.1 NATIONAL PLANNING POLICY STATEMENTS

NPS Reference	NPS Requirement
EN-1, paragraph 5.4.18	*"Where the development is subject to EIA, the applicant should ensure that the ES clearly sets out any effects on internationally, nationally, and locally designated sites of ecological or geological conservation importance (including those outside England and Wales), on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity, including irreplaceable habitats."*
EN-1 Paragraph 5.4.20-22	*"The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests."* *"Applicants should consider wider ecosystem services and benefits of natural capital when designing enhancement measures."* *"...the design process should embed opportunities for nature inclusive design. Energy infrastructure projects have the potential to deliver significant benefits and enhancements beyond Biodiversity Net Gain, which result in wider environmental gains (see Section 4.6 on Environmental and Biodiversity Net Gain). The scope of potential*

NPS Reference	NPS Requirement
	gains will be dependent on the type, scale, and location of each project."
EN-1 Paragraph 5.4.23	*"The design of energy NSIP proposals will need to consider the movement of mobile/migratory species such as birds, fish and marine and terrestrial mammals and their potential to interact with infrastructure. As energy infrastructure could occur anywhere within England and Wales, both inland and onshore and offshore, the potential to affect mobile and migratory species across the UK and more widely across Europe (transboundary effects) requires consideration, depending on the location of development. Applicants should consider relevant plan policies in marine plans in England."*
• *EN-1 Paragraph 5.4.33*	*"Applicants should include measures to mitigate fully the direct and indirect effects of development on ancient woodland, ancient and veteran trees or other irreplaceable habitats during both construction and operational phases."*
EN-1 Paragraph 5.4.34	*states: "Applicants should consider any reasonable opportunities to maximise the restoration, creation, and enhancement of wider biodiversity, and the protection and restoration of the ability of habitats to store or sequester carbon"*

NPS Reference	NPS Requirement
EN-1 Paragraph 5.4.36	*"Applicants should include appropriate avoidance, mitigation, compensation and enhancement measures as an integral part of the proposed development. In particular, the applicant should demonstrate that:* *• during construction, they will seek to ensure that activities will be confined to the minimum areas required for the works;* *• the timing of construction has been planned to avoid or limit disturbance;* *• during construction and operation best practice will be followed to ensure that risk of disturbance or damage to species or habitats is minimised, including as a consequence of transport access arrangements;* *• habitats will, where practicable, be restored after construction works have finished;* *• opportunities will be taken to enhance existing habitats rather than replace them, and where practicable, create new habitats of value within the site landscaping proposals. Where habitat creation is required as mitigation, compensation, or enhancement the location and quality will be of key importance. In this regard habitat creation should be focused on areas where the most ecological and ecosystems benefits can be realised; and*

NPS Reference	NPS Requirement
	• *mitigations required as a result of legal protection of habitats or species will be complied with."*
EN-3 paragraph 2.12.57	*"Applicants should consider any reasonable opportunities to maximise restoration, creation, and enhancement of wider biodiversity. "*
EN-3 paragraph 2.10.118	**Mitigation:** should "*aim to achieve environmental and biodiversity net gain in line with the ambition set out in the Environmental Improvement Plan and any relevant measures and targets, including statutory targets set under the Environment Act 2021 or elsewhere"*
EN-3 paragraph 2.10.122	*"Applicants are advised to develop an ecological monitoring programme to monitor impacts upon the flora of the site and upon any particular ecological receptors."*
EN-5 paragraph 2.5.1	*"When planning and evaluating the proposed development's contribution to environmental and biodiversity net gain, it will be important – for both the applicant and the Secretary of State – to supplement the generic guidance set out in EN-1 (Section 4.6) with recognition that the linear nature of electricity networks infrastructure can allow for excellent opportunities to:* • *Reconnect important habitats via green corridors, biodiversity stepping*

NPS Reference	NPS Requirement
	zones, and reestablishment of appropriate hedgerows; and/or *• Connect people to the environment, for instance via footpaths and cycleways constructed in tandem with environmental enhancements."*

9.2.2.2 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

National Planning Framework (NPPF)[151] sets out the Government's planning policies for England, and how they are expected to be applied.

Chapter 4 establishes the approach by which the planning system is required to contribute to, and enhance, the natural and local environment while maintaining local character. This includes measures such as:

- making quantifiable enhancements to biodiversity;
- avoiding nature designations;
- accounting for pollution risks and potential hazards to ground conditions; and
- identifying, mapping and safeguarding the following components:
  - local habitats and wider ecological networks (including the hierarchy of international, national, and locally designated sites of importance for biodiversity);
  - wildlife corridors and stepping stones that connect them; and
  - areas identified by national and local partnerships for habitat management, enhancement, restoration and / or creation.

9.2.3 LOCAL PLANNING POLICY

Local planning policy relevant to landscape and visual matters will be identified and drawn from the Northumberland Local Plan 2016-2036. Key Policies include:

- Policy ENV 1 Approaches to assessing the impact of development on the natural, historic and built environment

[151] Ministry of Housing, Communities and Local Government (2024) *National Planning and Policy Framework.* Available online at: National Planning Policy Framework

- Policy ENV 2 Biodiversity and geodiversity

In addition, Northumberland National Park Local Plan (2020) relevant policies include:

- Policy DM10 Habitats, Biodiversity and Geodiversity.

9.2.4 GUIDANCE

- Northumberland Biodiversity Action Plan[152]
- Noth East Combined Authority Local Nature Recovery Strategy (LNRS) for the North of Tyne[153]
- CIEEM (2024) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine[154].
- Bat Conservation Trust (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines. (4th edition)[155].
- Reason, P.F. and Wray, S. (2025) UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats[156].
- NatureScot et al (2021) Bats and onshore wind turbines – survey, assessment and mitigation[157].
- UKHab Ltd (2023) UK Habitat Classification Version 2.0[158].

[152] Northumberland Biodiversity Partnership (2018) Northumberland Biodiversity Action Plan. Available online at: Nland_Biodiversity_Action_Plan.pdf
[153] North East Combined Authority (2025) Draft Local Nature Recovery Strategy for the North of Tyne Available online at: Draft Local Nature Recovery Strategy for North of Tyne
[154] CIEEM (2024) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2. Chartered Institute of Ecology and Environmental Management, Winchester.
[155] Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). The Bat Conservation Trust, London.
[156] Reason, P.F. and Wray (2025) UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Version 1.2 Chartered Institute of Ecology and Environmental Management, Ampfield.
[157] NatureScot et al (2021) Bats and onshore wind turbines – survey, assessment and mitigation. Available online at: Bats and onshore wind turbines - survey, assessment and mitigation | NatureScot
[158] UKHab Ltd (2023) UK Habitat Classification Version 2.0. Available online at: ukhab – UK Habitat Classification

- Rodwell (2006) National Vegetation Classification: User's Handbook[159].
- The MorPH Survey: Technical Reference Manual[160].
- Harris et al (1989) Surveying Badgers[161].
- Neal E., & Cheeseman, C. (1996) Badgers[162].
- Bang, P and Dahlstrom, P. (2001) Animal Tracks and Signs[163].
- Sargent, G. and Morris, P. (2003) How to Find and Identify Mammals[164].
- Cresswell et al (2012) UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation[165].
- Gurnell J., Lurz, P.W.W., McDonald, R and Pepper, H. (2009). Practical techniques for surveying and monitoring squirrels[166].
- Strachan, R., Moorhouse, T and Gelling, M. (2011) Water Vole Conservation Handbook.[167]
- Edgar, P., Foster, J and Baker. J. (2010) Reptile Management Handbook[168].
- Oldham et al (2000) Evaluating the suitability of habitat for the great crested newt (*Triturus cristatus*)[169].

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[159] Rodwell (2006) National Vegetation Classification: User's Handbook. Available online at: National Vegetation Classification: Users' handbook
[160] The MoRPH Survey: Technical Reference Manual. 2022 version. Available online at: MoRPh-Manual-ver-14_Oct22.pdf
[161] Harris S., Cresswell P and Jefferies D (1989) Surveying Badgers. The Mammal Society, London. ISBN 10: 0906282063
[162] Neal, E & Cheesman, C. (1996) Badgers. T & A D Poyser, London. ISBN: 0856610828, 9780856610820
[163] Bang, P. and Dahlstrom, P. (2001) Animal Tracks and Signs. Oxford University Press, Oxford. ISBN 10: 0198507968
[164] Sargent, G. and Morris, P. (2003) How to Find and Identify Mammals. The Mammal Society London. ISBN 10: 0906282527
[165] Cresswell, W.J., Birks J.D.S., Dean, M., Pacheco, M., Trewhella, W.J., Wekks, D. and Wray S (2012) *UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation*. The Mammal Society, Southampton.
[166] Gurnell, J., Lurz, P.W.W., McDonald, R. and Pepper, H., (2009) *Practical techniques for surveying and monitoring squirrels.* Forestry Commission Technical Note, FCPN011
[167] Strachan, R., Moorhouse, T. and Gelling, M. (2011) *Water Vole Conservation Handbook*. Wildlife conservation Research Unit, University of Oxford, Oxford.
[168] Edgar, P., Foster, J. and Baker, J. (2010). *Reptile Habitat Management Handbook*. Amphibian and Reptile Conservation, Bournemouth.
[169] Oldham, R.S., Keeble., J., Swan, M.J.S. and Jeffcote, M. (2000) *Evaluating the suitability of habitat for the great crested newt (Triturus cristatus)*. Herpetological Journal 10(4), 143 – 155.

- Hendry, K and Cragg – Hine, D. (1997) Restoration of Riverine Salmon Habitats – A Guidance Manual – Fisheries Technical Manual 4.[170]
- Environment Agency (2003) River Habitat Survey in Britain and Ireland[171].
- Findley et al (2017) developing an empirical approach to optimal camera trap deployment at mammal resting sites: evidence from a longitudinal study of an otter (*Lutra lutra*) holt[172].
- Marshall, I & Nightingale, J. (2021) Crayfish Conservation Manual[173].
- Peay (2003) Monitoring the white-clawed crayfish[174].
- Froglife (1999) Reptile survey: An introduction to planning, conducting and interpreting surveys for snake and lizard conservation[175].
- UK Government (2024) Statutory biodiversity metric tools and guides[176].
- UK Government (2025) Advice on Habitat Regulations Assessments[177].
- Environment Agency Pollution Prevention Guidelines 5 (PPG5) - Works and maintenance in or near water[178].

[170] Hendry and Cragg – Hine, D. (1997) *Restoration of Riverine Salmon Habitats – A Guidance manual – Fisheries Technical manual 4.* Environment Agency, Bristol.
[171] Environment Agency (2003) *River Habitat Survey in Britain and Ireland*. *Field Survey Guidance Manual*. Environment Agency, Bristol.
[172] Findley et al (2017) *developing an empirical approach to optimal camera trap deployment at mammal resting sites: evidence from a longitudinal study of an otter Lutra lutra holt*. European Journal of Wildlife Research 63 (6)
[173] Marshall, I & Nightingale, J. (2021) *Crayfish Conservation Manual.* Rostra Publications, Bristol.
[174] Peay (2023) *Monitoring the White-clawed crayfish – Conserving Natura 2000 Rivers Monitoring Series No 1.* English Nature, Peterborough.
[175] Froglife (1999) Reptile survey: An introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth.
[176] UK Government 92024) *Statutory biodiversity metric tools and guides.* Available online at: Statutory biodiversity metric tools and guides - GOV.UK
[177] UK Government (2025) Nationally Significant Infrastructure Projects: Advice on Habitats Regulations Assessments. Available online at: https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-habitats-regulations-assessments
[178] Environment Agency (2007) *Pollution Prevention Guidelines – Works and Maintenance in or near water: PPG5.* Available online at: pmho1107bnkg-e-e.pdf

9.3 BASELINE CONDITIONS AND KEY SENSITIVITIES

9.3.1 PROPOSED STUDY AREA

The proposed Study Area is the area in which ecological impacts from the Proposed Development, inclusive of the Scoping Boundary, may occur. The Study Area was established following CIEEM guidelines, taking into consideration various factors including important ecological features within the Scoping Boundary and the surrounding area, activities occurring during the construction, operational and decommissioning phases of the Proposed Development, and the surrounding designated sites and their ecological features.

Study Areas for ecological features vary according to the designated sites, species and habitats which will potentially be impacted and will be subject to the desk-based assessment and field surveys. This information has been reviewed to assist in identifying potential constraints for the Proposed Development and to inform the survey scope.

The Study Area was determined to be a 5 km buffer from the Scoping Boundary (as detailed on **Figure 9.1**). The Study Area was determined based on the professional judgement of an ecologist as per CIEEM guidelines, and taking into account likely pathways of effect. For example effects to surface water, is 1 km as per **Chapter 11: Water Resources and Flood Risk**, and effects to noise are considered limited to 4300 m for construction and operation and 2 km in operation as per **Chapter 13: Noise and Vibration**. This buffer was used to take account of likely significant effects of the Proposed Development on mobile qualifying species of designated sites. Beyond 5 km qualifying species were considered unlikely to be affected. It should be noted that this is the Study Area for ecological features only, the study area for ornithological features is described in **Chapter 8: Ornithology**.

9.3.2 DATA SOURCES

9.3.2.1 DESK STUDY

A Desk Study was undertaken using the following data sources:

- A 5 km radius from the Scoping Boundary was searched to identify internationally and nationally designated sites using Natural England's Multi-Agency Geographic Information for the Countryside (MAGIC) online map[179].

[179] Natural England (2025) *MAGIC map.* Available online at: MAGIC

- An initial review of habitat suitability for protected[180] and / priority[181] species and search of publicly available records using the National Biodiversity Network (NBN) Atlas[182].
- Great crested newt impact risk zone map for Northumberland, Durham, Tyne and Wear and Tees Valley[183].

9.3.2.2 FIELD SURVEYS

The Report has been informed by ecological surveys conducted to date between 2022 and 2025 within the proposed wind farm Site. No surveys had yet been undertaken for the Cable Corridor Options; these are planned to be undertaken in 2026 (see **Section 9.5.4**).

Habitat Surveys

A UK Habitat Classification (UK Hab) Survey was conducted of the area of the Site in 2025[158], and where areas of habitat were considered as potential blanket bog, a National Vegetation Classification (NVC) Survey was also undertaken.

River Condition Assessment (RCA) surveys were undertaken following the Modular River Physical Survey (MoRPh) methodology, of accessible watercourses within the Site, in 2025 by trained and registered surveyors in accordance with current guidelines[160].

Protected Species

provides information on protected species surveys that were undertaken between 2022 and 2025.

[180] Protected species are those protected by European, UK or English legislation such as the Conservation of Habitats and Species Legislation 2017 (as amended), or the Wildlife and Countryside Act 1981 (as amended).
[181] Priority species are those listed on Section 41 of the National Environment and Rural Communities (NERC) Act 2006 as Species of Principal Importance and / or those listed in the Northumberland Biodiversity Action Plan.
[182] National Biodiversity Network Atlas. Available online at: NBN Atlas - UK's largest collection of biodiversity information
[183] Natural England (2023) *GCN Risk Zones (Northumberland, Durham, Tyne and Wear and Tees Valley* Available online at: GCN Risk Zones (Northumberland Durham Tyne and Wear Tees Valley) | Natural England Open Data Geoportal

TABLE 9.2 PROTECTED SPECIES SURVEYS COMPLETED 2022 - 2025

Protected Species	Methodology
Bats (Daytime Bat Walkover (DBW), Ground Level Tree Assessment and Preliminary Roost Assessment (PRA))	All potentially suitable trees (individually or groups) and structures within the main wind farm site, where safely accessible, were initially assessed from the ground level for potential to support roosting bats in accordance with Bat Conservation Trust (BCT) Guidelines[155]. Surveys were completed in 2023, however the habitat as not significantly changes within the Site between 2023 and 2026, consequently these surveys remain valid in their conclusions.
Bats (Activity Surveys Statics)	Surveys were completed in accordance with Bats and Onshore Wind Turbines – survey, assessment and mitigation (NatureScot et al, 2021)[157]. Static detectors were deployed considering indicative wind turbine layout for a minimum of 10 nights recording seasonally in accordance with the latest guidelines[157] (i.e. 10 nights in each of Spring (April – May), Summer (June – mid-August) and Autumn (mid-August – October)). Activity was monitored at 20 locations in 2023, and 20 revised locations in 2025.
Bats (Activity Surveys Transects)	Transects were undertaken to supplement the bat statics in accordance with Bats and Onshore Wind Turbines – survey, assessment and mitigation (NatureScot et al, 2021)[157]. Transects were completed between May and October 2023 and May to October 2025.The Site is in northern England, and in northern latitudes bat activity surveys are location dependent, and often unsuitable in April due to weather conditions in northern Britain. Therefore, professional judgement was used to determine the most effective activity period for the bat surveys in accordance with Bat Conservation trust guidelines[155].

Protected Species	Methodology
Badger	All suitable habitats, where accessible, were searched for evidence of badger. Field signs were described in accordance with Harris et al (1989)[161], Neal and Cheesman (1996)[162] and Bang and Dahlstrom (2001)[163]. Surveys were completed from 2022 to 2025.
Otter	All accessible watercourses within the Site were searched for evidence of otter. Banksides were walked both upstream and downstream recording signs encountered. Any locations of potential resting sites were carefully inspected and recorded and evidence of use recorded. Signs and resting sites described, as within Bang and Dahlstrom (2001)[163] and Sargent and Morris (2003)[164]. The otter surveys were completed between May and September 2025.
Pine marten	An assessment of habitat quality of the survey was completed, along with a search for evidence of pine marten and potentially suitable den sites. Assessment of habitat quality followed the method described in Cresswell et al (2012)[165]. Surveys were completed between May and September 2025.
Red squirrel	The survey methodology followed that outlined by Gurnell et al (2009)[166], with signs of squirrel presence described as per bang and Dahlstrom (2001)[163]. Signs indicating squirrel presence were searched for within suitable habitats within the Site. An assessment of habitat quality was undertaken. Surveys were undertaken between May and September 2025.
Water vole	A water vole survey was carried out following methods detailed in Strachan et al (2011)[167] between April and September 2025. The survey involved a thorough

Protected Species	Methodology
	inspection of all watercourses and suitable habitats, to search for signs indicating water vole presence.
Reptiles	Assessment was made of the extent and quality of potentially suitable habitats for reptiles within the Site, in accordance with Edgar et al (2010)[168]. The survey was completed between May and September 2025.
Great crested newt (GCN)	*Habitat Suitability Index (HSI)* Waterbodies within 500 m of the Site, where accessible, were assessed for their suitability to support GCN via HSI (methodology followed Oldham et al, 2010[169]). A 500 m buffer was initially used as this is the buffer in which great crested newt are likely to travel from their breeding pond, as detailed in the Great Crested Newt Conservation Handbook[184]. *eDNA Survey* Water samples taken between 13 May 2025 and 04 June 2025 from potentially suitable breeding ponds in and sent for eDNA analysis to detect GCN.
Fish Habitat Survey	A walkover survey of all watercourses within the Site boundary was undertaken in Summer 2025 to record habitat suitability for priority fish species such as salmonids (Atlantic salmon (*Salmo salar*) and brown / sea trout (*Salmo trutta*) in accordance with the latest guidelines[170],[171].

[184] Langton, T.E.S., Beckett, C.L., and Foster J.P. (2001) *Great Crested Newt Conservation Handbook*, Froglife, Halesworth.

9.3.3 PRELIMINARY BASELINE FINDINGS

9.3.3.1 DESK STUDY FINDINGS

Designated Sites

Details of the designated sites within 5 km of the Scoping Boundary returned from the desk study data search are shown in **Table 9.3** and **Figure 9.2**. To note, **Table 9.3** and **Figure 9.2**, include only sites designated for biological (ecological features). Designated sites for ornithology are detailed within **Chapter 8: Ornithology.**

TABLE 9.3 STATUTORY DESIGNATED SITES WITHIN 5 KM OF THE SCOPING BOUNDARY

DESIGNATED SITE NAME	DISTANCE FROM SITE	QUALIFYING FEATURES
Tyne and Allen River Gravels SAC	1.26 km south of the Site	• Calaminarian grasslands of the Violetalia calaminariae (riverine assemblages of plants indicative of metal-rich soils)
Simonside Hills SAC	3.78 km northeast of the Site	• European dry heaths • Blanket bog
New Scroggs SSSI	Within Cable Corridor Options	• Lowland calcareous grassland • Population of red data book plan, Lady's mantle (*Alchemilla micans*)
Wharmley Riverside SSSI	720 m south of the Site	• Lowland calaminarian grasslands
Gunnerton Nick SSSI	1.09 km south of the Site	• Lowland calcareous grassland • Lowland dry acid grassland
Tyne Watersmeet SSSI	1.94 km south of the Site	• Invert, assemblage – stream and river margin • Invert, assemblage, riparian sand.
Stonecroft Mine SSSI	3.13 km south of the Site	• Population of Schedule 8 plant – Young's helleborine (*Epipactis youngiana*) • Vascular plant assemblage
Simonside Hills SSSI	3.78 km northeast of the Site	• Blanket bog and valley bog • Short sedge acidic fen – upland • Subalpine dwarf-shrub heath • Upland oakwood • Wet heath – upland • Wet woodland
Mill and Whiskershiel Burns SSSI	3.90 km north of the Site	• Alkaline fen (upland, excluding alpine flushes) • Lowland calcareous grassland

DESIGNATED SITE NAME	DISTANCE FROM SITE	QUALIFYING FEATURES
		• Mire grasslands and rush pastures (upland) • Nationally scarce plant – blue moor grass (*Sesleria caerulea*).
Billsmoor Park and Grasslees Wood SSSI	4.98 km north of the Site.	• Upland oakwood • Wet woodland

Protected Species

An initial review of habitat suitability, and search of publicly available records using the NBN Atlas[182], has highlighted the potential presence of several protected species within 5 km of the Scoping Boundary, which includes:

- Amphibian species (including great crested newt (GCN)[185] (*Triturus cristatus*) – The Site is largely in a green zone for GCN but does contain some areas that are amber zones for GCN. The amber zones are scattered throughout the Site according to the Northumberland, Durham, Tyne and Wear and Tees Valley GCN map[183]);
- Bat species[186] (including common pipistrelle (*Pipistrellus pipistrellus*), Daubenton's bat (*Myotis daubentonii*), Natterer's bat (*Myotis nattereri*), noctule (*Nyctalus noctula*) and brown long-eared bat (*Plecotus auritus*));
- Otter[187] (*Lutra lutra*);

[185] Protected under Conservation of Habitats and Species Regulations (2017) as amended; and under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and listed as a Species of Principal Importance under the NERC Act 2006.
[186] All bat species are protected under the Conservation of Habitats and Species Regulations 2017 (as amended) and Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are listed as Species of Principal Importance in the UK
[187] Protected under Conservation of Habitats and Species Regulations (2017) as amended; and under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and listed as a Species of Principal Importance under the NERC Act 2006.

- White-clawed crayfish[188] (*Austropotamobius pallipes)*
- Badger[189] (*Meles meles*);
- Pine marten (*Martes martes)*[190]
- Red squirrel[191] (*Sciurus vulgaris*);
- Reptile species (including adder[192] (*Vipera berus*) and common lizard[193] (*Zootoca vivipara*)); and
- Water vole[194] (*Arvicola amphibius)*.

Invasive species records, including grey squirrel (*Sciurus carolinensis*) and American mink (*Neovison vison*), were also returned in the NBN 5 km data search.

9.3.3.2 FIELD SURVEY FINDINGS

To note the following section describes results from surveys of the Site only and does not include information for the Cable Corridor Options at this stage.

Habitat Surveys

The western part of the Site is dominated by coniferous plantation woodland, which is regularly harvested, while the east of the Site is dominated by wetland and heathland habitats and includes priority habitats[195] including lowland and upland heathland and blanket bog. In addition, several watercourses are

[188] Protected under the Conservation of Habitats and Species Regulations 2017 (as amended) and Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Also listed as a Species of Principal Importance under the NERC Act 2006.
[189] Protected under the Protection of Badgers Act 1992.
[190] Protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended)
[191] Protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and is listed as a Species of Principal Importance under the NERC Act 2006.
[192] Protected under Schedule 5 of the Wildlife and Countryside Act (as amended) and listed as a Species of Principal Importance under the NERC Act 2006.
[193] Protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and listed as a Species of Principal Importance under the NERC Act 2006.
[194] Protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and is listed as a Species of Principal Importance under the NERC Act 2006.
[195] Priority habitats are those considered to be Habitats of Principal Importance listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

present including Ottercops Burn in the east and Black Burn in the west. There are also nine areas of standing water, all in the west of the Site, one large pond close to the quarry, and a group of eight ponds.

All habitats recorded within the UK Habitat Classification Survey are shown on **Figure 9.3**.

A review of aerial imagery shows that the area of the Cable Corridor Options is a mixture of habitats including, farmland (grazing pasture and arable), bog, heathland, woodland (deciduous and coniferous plantation), rivers and streams and ponds.

Protected Species Survey

Great crested newt

Eight waterbodies within the Site were assessed for suitability as breeding ponds for GCN. The cluster of ponds at Mount Gilbert were counted as one site for purpose of GCN survey. No potentially suitable ponds outside the Site (i.e., within the 500 m buffer) were accessible for survey in 2025.However attempts to access these will be made in 2026, where practicable.

eDNA returned negative for GCN, thus GCN is considered absent from ponds within the Site.

Bats - DBW, GLTA and PRA

Conifer dominated plantation offers very poor roosting opportunities, but a small number of individual trees and established copses of mature mixed woodland have some potential roosting features (PRFs) within the Site.

A series of World War II pillboxes are present within the Site within Ottercops Moss and Scald Law. Structures have low suitability for roosting bats.

Bats – Activity Surveys (2023)

Five bat species were recorded using the Site. Using the number of bat passes as a reference point, as Bat Activity Index (BAI) had not been calculated at the time of writing, bat activity was low, and usually less than 100 passes per night. There were occasional nights of higher activity (hundreds of bat passes per night) at nine out of twenty locations, likely due to ideal weather conditions, prey availability and feeding / social activity. In general bat activity peaked in the late summer period (mid-August to mid -September 2023).

Most activity was attributed to pipistrelle (*Pipistrellus spp.*), which are at high risk of turbine mortality. Of the other species recorded the only other species

considered to be of high risk of turbine mortality is noctule. However, noctule constituted a small proportion of bat activity, concentrated in open areas.

The 2025 survey data was not available at the time of writing.

Otter

Otter evidence was found within the Site along Ottercops Burn. One potential resting site recorded in Scald Law area outside of the current proposed turbine envelope.

Badger

Evidence of badger was found across the Site, including setts, paths and latrines. Specific locations of badger setts are confidential but can be shared with statutory consultees as appropriate.

Fish

Binky Burn in the east of the Site contains habitat suitable for juvenile salmonids, and eel, though no spawning habitat was recorded.

Ottercops Burn contains suitable habitat for juvenile salmonids, lamprey ammocoetes (larva) and eel. Juvenile salmonids, stoneloach (*Barbatula barbatula*) and minnow (*Phoxinus phoxinus*) were noted during the surveys. A dead, white-clawed crayfish was recorded, with several areas of suitable habitat for white-clawed crayfish being recorded.

At the upstream end of Black Burn, flow is limited, but as Black Burn flows through the Site, particularly through wooded areas, within Raylees and Yearhaugh, suitable habitat is present for salmonids, lamprey and eel, including areas of potential spawning habitat. Furthermore, Black Burn has suitability for white-clawed crayfish.

The tributaries of the River Rede contained suitable habitat for juvenile salmonids, lamprey and eel, though no spawning habitat was recorded. It is assumed in the downstream areas, where access was not practicable, that habitat is suitable for white-clawed crayfish.

Pine marten

Habitats are considered suitable within the Site. One old dropping was found near Blaxter’s Lough, though not confirmed via DNA analysis due to age and weathering. Potential suitable den sites noted within plantation amongst rocky outcrops. No pine marten images were captured on wildlife cameras in 2025.

Red squirrel

Squirrel feeding remains were found within the coniferous plantation and red squirrels were recorded on wildlife cameras in Raylees, Yearhaugh and Wishaw plantations. No dreys were recorded.

Reptiles

The Site provides suitable and extensive foraging and basking habitat for reptiles. Common lizard and adder were both recorded within the Site, in open moorland near Ottercops and Mount Gilbert.

Water vole

No evidence of water vole was found during the survey, though a water vole was seen in Ottercops Burn during the Fish Habitat Survey.

9.4 POTENTIAL IMPACTS AND LIKELY SIGNIFICANT EFFECTS

The following impacts on sensitive ecological receptors have the potential to result from the Proposed Development and shall be considered in undertaking the assessment.

9.4.1 CONSTRUCTION

- Direct and indirect impacts on habitats, including peatland habitats (refer also to **Chapter 10**);
- Pollution of habitats due to accidental spillage or leakage during construction;
- Impacts on habitats from construction dust and air pollutants from construction traffic;
- Potential for killing, injuring, disturbing and / or displacing protected and priority species, and loss of supporting habitats during construction (e.g., due to entrapment in trenches, collision with site vehicles or destruction of important areas of shelter (e.g., bat roosts, otter holts / couches, badger setts)) whilst in use by protected species; and
- Direct and indirect impacts on habitats and species from air emissions due to increases in traffic during construction period.

9.4.2 OPERATION

- Turbine related bat mortality – death or injury to bats by collision with the turbine blades or barotrauma during the operational phase.
- Disturbance to protected species from operational lighting and noise.

9.4.3 DECOMMISSIONING

- Damage and disturbance from maintenance activities during the operational phase, leading to displacement of protected species.

9.5 ASSESSMENT METHODOLOGY

The ecological impact assessment will evaluate the sensitivity of the ecological receptors within the Scoping Boundary and surrounding area to potential impacts of the Proposed Development during construction, operation and decommissioning. The assessment will consider the following:

- The magnitude of both beneficial and adverse impacts, as determined by intensity, frequency and by how long the effects last, and how far reaching the effects are;
- The vulnerability of the habitat or species to the changes likely to arise from the Proposed Development;
- The ability of the habitat, species, or ecosystem to recover, considering both fragility and resilience; and
- The viability of component ecological elements and the integrity of ecosystem function, processes, and favourable condition.

The methodology will deviate slightly from the proposed Institute of Environmental Management and Assessment (IEMA) Environmental Impact Assessment (EIA) methodology provided in **Chapter 3: EIA Process**, as it will be undertaken with reference to the CIEEM Guidelines for EcIA, which includes identifying important ecological features (IEFs) and excludes the use of a matrix approach to determine the likely significance of the effect.

For the purposes of EcIA significance of effect will be defined as an effect that either supports or undermines biodiversity conservation objectives for important ecological features (IEFs), or for biodiversity in general. Conservation objectives may be specific, broad or wide-ranging; therefore, effects can be considered significant at a wide range of geographical scales.

Significance of the likely significant effects on each IEF is determined through professional judgement, by considering both the nature conservation importance of each feature and the degree which it may be affected (the effect magnitude) bv the Proposed Development. Where identified, the likely significant effects will be quantified with reference to an appropriate geographic scale.

9.5.1 CUMULATIVE EFFECTS

As some effects can be individually insignificant, but collectively, taking place over time or concentrated in a location, can be significant, a cumulative assessment will be carried out within the Ecological Impact Assessment (EcIA) Chapter. Likely significant cumulative effects arising from the Proposed Development in combination with nearby wind farm developments will be considered within this assessment. Cumulative effects are particularly important as many ecological features are exposed to background levels of threat or pressure and may be close to reaching critical thresholds where further impact could cause irreversible decline.

9.5.2 DESIGN COMMITMENTS AND ASSUMPTIONS

The following design commitments and assumptions will be used to inform the potential impacts and likely significant effects of the Proposed Development and the design of survey scope:

- Watercourse crossings will be either by way of Horizontal Directional Drilling (HDD) to a depth of at least 5 m if the crossing is by underground cable (UGC), or if the crossing is an overhead line (OHL), then the poles / towers will be set back at least 15 m from watercourses;
- Any woodland listed on the AWI will be avoided and there will be a buffer of 15 m between the AWI listed woodland and the Proposed Development[196].
- Ancient/veteran trees, a minimum buffer zone of at least 15 times larger than the diameter of each tree in an ancient or broadleaved woodland edge or per individual ancient or veteran tree. The buffer zone should be 5 metres from the edge of the tree's canopy if that area is larger than 15 times the tree's diameter.
- Other Tree loss will be avoided wherever practicable;
- Habitats of Principal Importance (HPI) will be avoided wherever practicable;
- Blanket bog will be avoided wherever practicable; and
- All designated sites will be avoided including appropriate buffer zones.

9.5.3 DESK STUDY AND CONSULTATION

Biological data requests will be undertaken with Environmental Records Information Centre for the North East of England (ERIC North East) and other

[196] UK Government (2026) *Ancient woodland, ancient trees and veteran trees: advice for making planning decisions.* Available online at: Ancient woodland, ancient trees and veteran trees: advice for making planning decisions - GOV.UK

relevant resources (for example Tyne Rivers Trust). Searches of local sites of nature conservation interest including woodland listed on the Ancient Woodland Inventory (AWI) will be carried out within 2 km of the Scoping Boundary. 2 km is considered a suitable buffer, as it allows an understanding of protected or priority species in the locale, and which are likely to be present within the Scoping Boundary.

Consultation will be conducted with relevant statutory and non-statutory nature organisations, where relevant. For example, consultation will be sought with Northumberland County Council to discuss opportunities for enhancement in line with the draft LNRS and approach to BNG.

9.5.4 PLANNED SURVEYS

9.5.4.1 THE SITE

The following surveys are planned at the Site in 2026:

Great crested newt

Great crested newt surveys comprising HSI, eDNA survey and population surveys will be undertaken on the following waterbodies:

- Any pond which lies within 250 m of the Site, where surveys were not conducted in 2025, where accessible. A 250 m buffer for GCN surveys is usually sufficient, though this may be increased to 500 m if there are no obvious barriers to GCN dispersing into the wider environment[197]. Terrestrial habitats such as rough (tussocky) grasslands, scrub, hedgerows and woodland provide suitable foraging and refugia habitat for GCN[198]. The Site lies within an agricultural landscape. Farmland is open and generally unsuitable for GCN, as it lacks the floral diversity to support a wide variety of invertebrates and lacks features for refuge for GCN leaving them open to predation and dessication. Therefore, as terrestrial habitat was limited within the Site and its surrounds, it is unlikely that GCN will disperse into the wider environment, consequently a 250 m was considered sufficient for the GCN surveys.

All surveys will be completed in accordance with the latest guidelines[169].

[197] Natural England (2022) Great crested newts: advice for making planning decisions. Available online at: Great crested newts: advice for making planning decisions - GOV.UK

[198] Langton, T.E>S., Beckett, C.I., and Foster J.P. (2001) *Great Crested Newt Conservation Handbook, Froglife , Halesworth*

eDNA Surveys for great crested newt need to be undertaken between the 15 April and 30 June. Population surveys, if required, need to be completed between mid-March to mid-June. Therefore, it is likely that population surveys will commence prior to the eDNA Surveys, and should a waterbody yield a negative eDNA Result, population surveys will then cease on that waterbody.

Bats

Bat surveys identified several trees, and some World War II pillboxes, which hold bat roosting potential. Where these trees and pillboxes lie within 50 m of proposed works, bat surveys (emergence surveys or aerial inspection surveys) will be conducted in accordance with BCT guidelines[155]. These surveys will be conducted between April and September.

Otter

Otter surveys will be conducted on suitable watercourses 250 m upstream and downstream of any proposed watercourse crossing point within the Site. Surveys will be completed in accordance with best practice guidelines (**Section 9.2**).

In addition to the above camera traps will be left in situ for a minimum of 28 days at the previously identified potential resting site within the Scald Law area, as per guidelines from Findley et al (2017)[199].

These surveys can be completed at any time of year.

White-clawed crayfish

During the fish habitat surveys conducted in 2025, a dead, white-clawed crayfish was recorded on Ottercops Burn and suitable habitat was found on other watercourses within the Site. Therefore, eDNA surveys of watercourses that will be crossed within the Site will be completed in accordance with the latest guidelines[173], and where a positive result is returned, population surveys for white-clawed crayfish will be completed in accordance with the latest guidelines[174].

eDNA samples for white-clawed crayfish will be collected between April and October. Population surveys for white-clawed crayfish (if required) will be undertaken between July and October.

[199] Findlay et al (2017) An evidence-based approach to identifying resting sites of Eurasian otter Lutra lutra from camera-trap and field sign data

Badger

Badger surveys will be conducted in accordance with the best practice guidelines[161],[162]. Surveys will be undertaken within all suitable habitats within the Site focussing on areas within 100 m of the Site. 100 m is considered a suitable buffer, as construction methodologies are not known at this stage, and should methods such as piling be used, there is potential for disturbance or destruction of badger setts within 100 m of any of these works. These surveys can be completed at any time of year but will ideally be completed between in Spring (February to April) or Autumn (late September to November) when badger territorial activity is at its highest and vegetation growth is lower.

Pine marten

Pine marten surveys will be undertaken in suitable habitat, within 50 m of proposed infrastructure within the Site. Camera monitoring of any high potential den sites will also be conducted, where these potential den sites lay within 50 m of the Site.

All surveys will be conducted in accordance with the latest guidelines[165].

The surveys will be conducted between May and September, and ideally between June to August.

Red Squirrel

A survey for field signs, in accordance with the latest guidelines[166] will be completed, where suitable habitat exists within 50 m of the Site, or where removal of trees is likely to occur within the Site. These surveys can be completed at any time of year.

Reptiles

Reptile surveys will be completed in accordance with Froglife (1999)[175] and will be undertaken within the Site where suitable habitat exists within 50 m of proposed infrastructure. Reptile surveys will be completed between April and September, when reptiles are active, ideally surveys will occur in the months of April, May and / or September.

Water vole

Two water vole surveys will be completed, one in mid-April to May and one in July to September in accordance with guidelines[167]. Surveys will be undertaken of all suitable habitat within 100 m of proposed watercourse crossings within the Site.

9.5.4.2 CABLE CORRIDOR OPTIONS

The following surveys will be completed with respect to the Cable Corridor Options in 2026:

- Habitats and Botany Surveys;
- Protected Species Surveys (terrestrial); and
- Aquatic Ecology and Fisheries Surveys.

Habitats and Botany Surveys

Desk Based – Assessment UK Habitat Classification (UK Hab) Survey of Cable Corridor Options

A desk-based mapping exercise will be undertaken of the Cable Corridor Options. The area will be habitat mapped in accordance with alpha numeric UK Hab classification codes using digital aerial imagery to give coarse habitat types, number of waterbodies and locations of watercourses etc. This habitat map will then be reviewed to identify areas which will require protected species surveys.

UK Hab Survey

In accordance with the latest version of the UK Hab Survey methodology[158], a UK Hab survey of the Cable Corridor Options will be undertaken. The UK Hab Survey will cover the Cable Corridor Options (Habitat Survey area). This survey will map habitats according to alpha numeric UK Hab classification codes and involve the completion of a habitat condition assessment (HCA) based on latest guidance[176]. The survey will record vascular plants and identify the presence or absence of invasive botanical species. Target Notes (TN) will detail notable features and evidence of protected species.

The UK Habitat Survey will be completed between April and September.

National Vegetation Classification (NVC) Survey

In line with current guidelines[159], an NVC Survey of specific areas of the Cable Corridor Options will be undertaken. The NVC Survey will focus on areas of habitat identified as both high value from the desk-based UK Hab mapping exercise and irreplaceable within the Statutory Biodiversity Metric. The survey will be conducted within the Habitat Survey Area.

The NVC Survey will be completed between April and September.

Protected Species Surveys

Great crested newt

As the Cable Corridor Options lie largely within a green zone for great crested newt, with some scattered amber zones, consultation will be undertaken with Natural England to look to use the no survey District Level Licensing (DLL) approach for great crested newt for the Cable Corridor Options. However, if this is not agreed then surveys eDNA survey under DLL survey option would be undertaken. This will requires surveys are undertaken on the following waterbodies:

- Any waterbody identified within 250 m of the Cable Corridor Options following the desk-based UK Hab Survey, as per UK Government guidelines[200].

All surveys will be completed in accordance with the latest guidelines[169]. eDNA Surveys for great crested newt will be undertaken between the 15 April and 30 June. Any population surveys, if required, will be completed between mid-March to mid-June.

Bats

A Ground Level Tree Assessment (GLTA) will be undertaken of suitable trees within the Cable Corridor Options. Suitable trees will be classified as PRF- I (suitable for individual bats), PRF- M (suitable for multiple bats and may therefore be used by a maternity colony), and FAR (Further Assessment Required). Woodlands will be classified as a tree group. Where the loss of PRF-M and FAR trees is unavoidable, further surveys in the form of aerial inspection surveys of emergence surveys will be completed. Static detectors will be used in areas of moderate or higher suitability habitat for foraging and commuting bats to understand the species assemblage and bat activity levels throughout the Cable Corridor Options.

GLTA and DBW can be completed at any time of the year; however any follow up emergence surveys or aerial inspection surveys, and the proposed bat static surveys will be completed between April and October.

Otter

Otter surveys will be conducted on suitable watercourses 250 m upstream and downstream of any proposed watercourse crossing point within the Cable

[200] UK Government (2025) *Great crested newts: advice for making planning decisions*. Available online at: Great crested newts: advice for making planning decisions - GOV.UK

Corridor Options. Surveys will be completed in accordance with the latest guidelines[163],[164] and can be completed at any time of year.

Badger

Badger surveys will be conducted in accordance with best practice guidelines[161],[162] on any areas identified as suitable for badger following the desk-based UK Hab survey of the Cable Corridor Options.

These surveys can be completed at any time of year but will ideally be completed between in Spring (February to April) or Autumn (late September to November) when badger territorial activity is at its highest and vegetation growth is lower.

Pine marten

In addition to the above any areas identified as suitable habitat for pine marten following the desk - based UK Hab survey of the Cable Corridor Options, will be subject to a pine marten survey. All surveys will be conducted in accordance with the latest guidelines[165] and will be conducted between May and September, ideally between June to August.

Red Squirrel

A survey for field signs, in accordance with the latest guidelines[166] will be completed where suitable habitat is identified following the desk-based UK Hab Survey of the Cable Corridor Options. The surveys can be completed at any time of year.

Reptiles

Reptile surveys will be completed in accordance with Froglife (1999)[175] and will be undertaken where suitable reptile habitat is identified following the desk-based UK Hab Survey of the Cable Corridor Options. Any reptile surveys required will be completed between April and September when reptiles are active, ideally surveys will be completed in April, May and / or September.

9.5.5 BIODIVERSITY NET GAIN

The Environment Act (2021) Section 99 indicates that "*Schedule 15[201] makes provision about biodiversity gain in relation to development consent for nationally significant infrastructure."* This is expected to be mandatory for NSIP

[201] UK Government (2021) Environment Act 2021. Available online at: Environment Act 2021.

projects from 02 November 2026[202] and will mean applications will be required to achieve 10 % Biodiversity Net Gain (BNG).

As per the overarching NPS (EN-1), paragraph 4.6.6 "*Energy NSIP proposals, whether onshore or offshore, should seek opportunities to contribute to and enhance the natural environment by providing net gains for biodiversity, and the wider environment where possible*."

The Proposed Development is committed to achieving over 10 % BNG through habitat retention, enhancement and creation with consideration of local priority habitats. Opportunities will be sought to link delivery of BNG relevant to the Northumberland Local Plan and the North East Combined Authority LNRS for the North of Tyne. It should be noted that all BNG proposals will be developed in consultation with Northumberland County Council, though decisions as to how BNG is delivered will be made by the Applicant.

A BNG Assessment Report will be produced, detailing the approach to assessment and toolkit results (including baseline units, post development units, temporary impacts and irreplaceable habitat impacts).

Significant biodiversity enhancement measures required to achieve the BNG will be proposed as part of Habitat Management and Monitoring Plan (HMMP), a draft of which will be submitted as part of the application. Measures are still in development and will be revised as the design of the Proposed Development progresses; however, it is anticipated that the HMMP will be focused on peatland restoration. This will likely involve removing scrub and trees from the bog and improving the hydrological connectivity to re-wet areas of bog. Peatland restoration will improve the biodiversity value of the area and increase the carbon sequestration potential of the bog.

Following Royal Assent the Planning and Infrastructure Act 2025[203] introduced the creation of the Nature Restoration Fund (NRF) and Environmental Delivery Plans (EDFs). The implementation of the Act, and the NRF and EDFs are still at an early stage, though it is known that the first EDP will be for nutrient pollution, and DLL for GCN will remain. Should any changes occur, the assessment will be cognisant of any changes.

[202] https://www.gov.uk/government/consultations/improving-the-implementation-of-biodiversity-net-gain-for-minor-medium-and-brownfield-development/outcome/government-response-and-summary-of-responses
[203] UK Government (2025) *Planning and Infrastructure Act 2025*. [Online] Available at: Planning and Infrastructure Act 2025

9.5.6 HABITAT REGULATIONS ASSESSMENT

Habitats Regulations Assessment is discussed here for reference, but is legally distinct and separate from EcIA, and the EIA Regulations. The Habitats Regulations require an appropriate assessment of any adverse effects on qualifying features of internationally important nature conservation sites that are likely to be significantly affected by a proposed project. These internationally important sites include SACs, or candidate SACs (cSACs), SPAs or potential SPAs (pSPAs), Sites of Community Importance (SCIs) and Ramsar sites. These are often referred to as 'European Sites'. European sites form part of a network of protected sites across the UK known as the national site network (NSN)[204]. The Habitat Regulations Assessment (HRA) is the process that determines whether there are any 'likely significant effects' of a project either alone, or in combination with other projects and plans on a European site (screening stage). If a likely significant effect cannot be ruled out then an Appropriate Assessment must be undertaken to determine whether the integrity of the European site will be adversely affected by the project.

As per **Table 9.3,** the desk study identified two SACs within 5 km of the Proposed Development:

- Tyne and Allen River Gravels SAC – 1.26 km south of Fourstones substation and is designated for calaminarian grasslands of the *Violetalia calaminariae*. The Proposed Development is located upstream of the SAC within the River South Tyne catchment, and no plausible hydrological or other impact pathways have been identified. On this basis, likely significant effects on Tyne and Allen River Gravels SAC are not anticipated.
- Simonside Hills SAC – 3.78 km north of the Site and is designated for European dry heaths and blanket bog. The Site is physically separated from Simonside Hills SAC by a road, and no plausible impact pathways are identified between the Site and the SAC. On this basis, likely significant effects on Simonside Hills SAC can be ruled out.

As there are no impact pathways to these sites, a HRA is considered to not be required. This will be discussed with Natural England.

[204] UK Government (2021) Changes to the Habitats Regulations 2017. Available online at: https://www.gov.uk/government/publications/changes-to-the-habitats-regulations-2017/changes-to-the-habitats-regulations-2017#creating-a-national-site-network

Following the Planning Inspectorate advice[205], the information provided to the Competent Authority (in this case the Secretary of State (SoS) for Department for Energy Security and Net Zero (DESNZ)) can take the form of a brief statement confirming that there are no pathways that could lead to likely significant effects on a European site from the Proposed Development.

Information regarding sites designated for ornithological features, and whether they require HRA are discussed in **Chapter 8: Ornithology**.

9.6 MITIGATION AND PROTECTED SPECIES LICENSING

The Proposed Development will follow the mitigation hierarchy as per CIEEM guidelines[154] and relevant planning policy. Areas of important habitats are present, and the design of the Proposed Development will seek to avoid these areas where practicable.

Section 9.5.2 details commitments that have been made during the Proposed Development design to avoid and reduce potential impacts upon ecological features. During construction and operation, procedures will be carried out in line with the best available techniques to reduce the risk of pollution to adjacent habitats, such guidelines include the recently archived Environment Agency PPG5- Works and maintenance in or near water[206].

Prior to the construction phase a Construction Environment Management Plan (CEMP) will be produced which will incorporate specific measures based on the recommendations of the EcIA report. An Ecological Clerk of Works (ECoW) will oversee compliance with planning conditions and legislation during construction.

Protected Species Surveys will inform the requirements for Species Protection Plans (SPPs) and potential protected species licensing. Where a protected species licence is deemed necessary, Natural England will be consulted and a draft licence application provided. Following the review of the draft licence application, Natural England[207] will either:

[205] UK Government (2025) Nationally Significant Infrastructure Projects: Advice on Habitats Regulations Assessments. (Online) Available at: https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-habitats-regulations-assessments

[206] Environment Agency (2007) *Pollution Prevention Guidelines – Works and Maintenance in or near water: PPG5*. Available online at: pmho1107bnkg-e-e.pdf

[207] Nationally Significant Infrastructure Projects (NSIP): Advice on working with public bodies in the infrastructure planning process, Annex C: Natural England and the Planning Inspectorate - GOV.UK

- provide a Letter of No Impediment (LONI), explaining that based on the information reviewed to date, that it sees no impediment to a licence being granted in the future should the DCO be issued; or
- if there are licensing issues to address, these will be set out in writing for the applicant to resolve. Only when all matters are resolved, following review of a subsequent draft licence application, can a LONI be issued.

Any LONI will be sent to the applicant to provide within the application for examination. Natural England will copy any correspondence to the Inspectorate.

DLL for GCN is a separate strategic level licensing process whereby the applicant will provide information to Natural England via an Enquiry Form and then Natural England will undertake an assessment to confirm the level of compensation required proportionate to the proposed development's impacts on GCN and their habitats. A counter-signed Impact Assessment and Conservation Payment Certificate (IACPC) is justification as to why significant effects on GCN populations as a result of the Proposed Development would be avoided. The applicant must include a copy of the countersigned IACPC with their application.

9.7 SCOPE OF THE ES CHAPTER

Table 9.4 contains a list of all receptors and species relating to ecology that will be scoped in or out of the assessment.

TABLE 9.4 ENVIRONMENTAL FACTORS TO BE SCOPED IN OR OUT OF THE ASSESSMENT

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
Simonside Hills SAC	Scoped in	Simonside Hills SAC lies 3.78 km north of the Site and is separated from the Site by a road. The Site is designated for blanket bog, and therefore due to distance from the Site and a lack of impact pathway effects to Simonside Hills SAC can be ruled out. However, it is recognised that traffic routes/numbers/types of vehicles required during construction is not yet known and thus will be considered once this information is available. Therefore Simonside Hills SAC has been scoped in to the assessment.
Tyne and Allen River Gravels SAC	Scoped in	Tyne and Allen River Gravels SAC lies 1.26 km south of Fourstones substation and is designated for calaminarian grasslands of the *Violetalia calaminariae*. The Site lies to the south of the Proposed Development, and upstream of any likely significant effects to the River South Tyne, consequently, there is no impact pathway and likely significant effects to Tyne and Allen River Gravels SAC are not anticipated. However, it is recognised that traffic routes/numbers/types of vehicles required during construction is not yet known and thus will be considered once this information is available. Therefore Tyen and River Gravels SAC is scoped in to the assessment.
New Scroggs SSSI	Scoped in	New Scroggs SSSI lies within the Cable Corridor Options and so likely significant effects to the SSSI cannot be ruled out. Consultation will be required with Natural England. New Scroggs SSSI is scoped in to the assessment.

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
Wharmley Riverside SSSI	Scoped out	Wharmley Riverside SSSI lies 720 m south of the Site, and is designated for lowland calaminarian grasslands, due to distance and separation from the Site, effects to Wharmley Riverside SSSI are not anticipated and Wharmley Riverside SSSI can be scoped out of the assessment. However, it is recognised that traffic routes/numbers/types of vehicles required during construction is not yet known and thus will be considered once this information is available.
Gunnerton Nick SSSI	Scoped out	Gunnerton Nick SSSI lies approximately 1.09 km from the Site and is notified for lowland calcareous grassland and lowland dry acid grassland. Due to distance and separation from the Site no impacts and likely significant effects are anticipated. Therefore, Gunnerton Nick SSSI is scoped out of the assessment. However, it is recognised that traffic routes/numbers/types of vehicles required during construction is not yet known and thus will be considered once this information is available.
Tyne Watersmeet SSSI	Scoped out	Tyne Watersmeet SSSI is located 1.94 km south of the Site and is hydrologically connected to the Site. However, as there is commitment from the Applicant to either undertake HDD at a depth of 5 m if the cable is undergrounded, or if OHL to set back infrastructure at least 15 m back from the watercourse, effects to watercourses can be ruled out and effects to Tyne Watersmeet SSSI are not anticipated. Therefore, Tyne Watersmeet SSSI can be scoped out of the assessment. However, it is recognised that traffic routes/numbers/types of vehicles required during

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
		construction is not yet known and thus will be considered once this information is available.
Stonecroft Mine SSSI	Scoped out	Stonecroft Mine SSSI lies 3.13 km south of the Site and is designated for its population of Young's helleborine, and vascular plant assemblage; however, due to distance and separation between the Site and the Stonecroft Mine SSSI, impacts and likely significant effects to Stonecroft Mine SSSI are not anticipated and Stonecroft Mine is scoped out of the assessment. However, it is recognised that traffic routes/numbers/types of vehicles required during construction is not yet known and thus will be considered once this information is available.
Simonside Hills SSSI	Scoped out	Simonside Hills SSSI lies 3.78 km from the Site and is separated from the Site by a road. The Site is designated for its habitats including blanket bog, acidic fen, subalpine dwarf-shrub heath, upland oakwood, wet heath and wet woodland. As the Site is separated from Simonside Hills SSSI by a road and is 3.78 km from the Site there is no impact pathway between the Site and Simonside Hills SSSI. Therefore, effects to Simonside Hills SSSI can be ruled out, and Simonside Hills SSSI can be scoped out of the assessment. However, it is recognised that traffic routes/numbers/types of vehicles required during construction is not yet known and thus will be considered once this information is available.
Mill and Whiskershiel SSSI	Scoped out	Mill and Whiskershiel Burns SSSI is 3.90 km north of the Site, and is dedicated for its habitats (alkaline fen, lowland

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
		calcareous grassland, mire grasslands and rush pastures) and blue moor grass. Due to the distance between the Site and Mill and Whiskershiel SSSI impacts and likely significant effects to Mill and Whiskershiel SSSI are not anticipate and Mill and Whiskershiel SSSI is scoped out of the assessment. However, it is recognised that traffic routes/numbers/types of vehicles required during construction is not yet known and thus will be considered once this information is available.
Billsmoor Park and Grasslees Wood SSSI	Scoped out	Billsmoor Park and Grasslees Wood SSSI is 4.98 km north of the Site and is designated for upland oakwood and wet woodland. Due to the distance between the Site and Billsmoor Park and Grasslees Wood SSSI no impacts are anticipated to the SSSI, and so Billsmoor Park and Grasslees Wood SSSI is scoped out of the assessment. However, it is recognised that traffic routes/numbers/types of vehicles required during construction is not yet known and thus will be considered once this information is available.
Bats	Scoped in	Five species of bats have been confirmed as using the Site following surveys undertaken in 2023, furthermore several trees and a series of World War II pillboxes were recorded as holding suitability for roosting bats. No surveys have been undertaken of the Cable Corridor Options. Therefore, there is potential for bats to be affected by the Proposed Development and bats are scoped in to the assessment.
Amphibians (including GCN)	Scoped in	eDNA results for GCN surveys of ponds within the Sitewere negative indicating GCN are absent. However, access was not practicable to ponds outside the Site boundary and surveys

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
		have not been undertaken of the Cable Corridor Options. Therefore, there is potential for GCN to be affected by the Proposed Development and at this stage, GCN are scoped in to the assessment.
Reptiles	Scoped in	Adder and common lizard have both been recorded within the Site, in open moorland near Ottercops and Mount Gilbert, and no surveys have been undertaken of the Cable Corridor Options; therefore, reptiles could be affected by the Proposed Development and are scoped in to the assessment.
Otter	Scoped in	Otter evidence, including a potential resting site has been recorded within the Site, and no surveys for otter resting places have been undertaken of the Cable Corridor Options. Therefore, otters could be affected by the Proposed Development and are scoped in to the assessment.
Badger	Scoped in	Evidence of badger has been found across the Site, including badger setts and no surveys for badger surveys have been conducted within the Cable Corridor Options. Therefore, badger could be affected by the Proposed Development and are scoped in to the assessment.
Red Squirrel	Scoped in	Red squirrel has been recorded on wildlife cameras in Raylees, Yearhaugh and Wishaw plantations and have thus been confirmed within the Site. No surveys have been undertaken of the Cable Corridor Options, and red squirrel could be affected by the Proposed Development, consequently red squirrel are scoped in to the assessment.

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
Water Vole	Scoped in	A water vole was seen in Ottercops Burn during the Fish Habitat Survey, and thus water vole has been confirmed within the Site. Though no surveys have been undertaken of the Cable Corridor Options, with the commitment to either HDD under watercourses, or if an OHL is constructed committing to place infrastructure at least 15 m from watercourses, the cable will not impact water vole. However, as water vole has been found in the Site, water vole could be affected by the Proposed Development and is scoped in to the assessment.
Pine Marten	Scoped in	There was one historic record of pine marten returned within 10 km of the Site boundary, from 1960. Pine martens are usually associated with woodlands, and their dens are usually within hollow trees, among rocks, or in disused bird nests or squirrel dreys[208]. The woodland, heathland and grasslands within the Site is considered to provide suitable foraging habitat for pine marten, with a potential den site noted during the surveys. In addition no pine marten surveys have been undertaken of the Cable Corridor Options. Therefore there is potential for pine marten to be affected by the Proposed Development and pine marten is scoped in to the assessment.
Peatland Habitats	Scoped in	The east of the Site is dominated by wetland and heathland habitats, which may include blanket bog. This habitat may confirm to HoPI or Annex I and could be affected by the

[208] The Vincent Wildlife Trust (2015) *Managing forest and woodlands for pine martens 'Practical measures to protect and benefit the pine marten'*

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
		Proposed Development; therefore, this habitat is scoped in to the assessment.
Rivers	Scoped in	There are a number of watercourses within the Site, which have been subject to a MoRPH survey to inform an RCA. This data is required to inform the BNG assessment of the site. In addition, Cable Corridor Options cross several watercourses, however the Applicant is committed to either crossing watercourses by HDD at a depth of 5 m, or if an OHL is constructed placing infrastructure at least 15 m back from watercourses, as such there will be no effect to watercourses from the Cabel Corridor Options. However, as watercourses will be crossed by permanent access tracks in the Site, including the Black Burn, then rivers are scoped in to the assessment.
Woodland	Scoped in	There are several areas of broadleaved woodland within the Cable Corridor Options, however the design is committed to avoiding woodland, therefore impacts to woodland are not anticipated for the grid route. However, the western part of the Site is mostly coniferous woodland, which will be affected by the Proposed Development; therefore, woodland is scoped in to the assessment.
Fish	Scoped in	Watercourses within the Site including Binky Burn, Ottercops Burn and Black Burn have been confirmed as holding suitable habitat for juvenile salmonids, lamprey and eel, with Black Burn having areas suitable for spawning for salmonids and lamprey. Therefore, the presence of fish within the Site is likely, and as there will be several access tracks over

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
		watercourses including the Black Burn, effects on fish cannot be ruled out and so fish are scoped in to the assessment.
White Clawed Crayfish	Scoped in	The watercourses within the Site are hydrologically connected to the River Rede, a major tributary of the Tyne White-clawed crayfish are known to be present within the River Rede[209]. Furthermore, watercourses within the Site, such as Binky Burn, Ottercops Burn and Black Burn were found to be suitable for white-clawed crayfish, with a dead, white-clawed crayfish being recorded on Ottercops Burn. Several watercourses within the Site, including Black Burn are to be crossed by new access tracks, and so effects to white-clawed crayfish cannot be ruled out. Therefore, white-clawed crayfish is scoped in to the assessment.
Freshwater pearl mussel	Scoped out	Freshwater pearl mussel is known to be resident within the lower River Rede and North Tyne[210], and the Cable Corridor Options cross the North Tyne. However, the design commits to crossing watercourses by HDD at a depth of 5 m, if UGC is used, or where OHL is used at a watercourse crossing point, setting back infrastructure at least 15 m from the watercourses. With these commitments in place impacts to the North Tyne are unlikely and so freshwater pearl mussel is scoped out of assessment.

[209] Tyne Rivers Trust (n.d) [Online] Available at: https://www.tyneriverstrust.org/white-clawed-crayfish/
[210] Tyne Rivers Trust (2026) *freshwater pearl mussel* [Online] Available at: Freshwater Pearl Mussel | Tyne Rivers Trust

9.8 CONSULTATION AND SCOPING QUESTIONS

Consultation will be required with the following statutory consultees:

- Natural England;
- Northumberland County Council; and
- The Environment Agency.

Consultation will be sought with the following non statutory organisations

- ERIC North East; and
- Tyne Rivers Trust

The following questions have been designed to ensure that the proposed methodologies and assessment are carried out in a robust manner and to the satisfaction of the determining authorities:

- Q9.1: Are consultees content with the proposed methods for assessment? Have all ecological receptors and potential impacts that could result from the Proposed Development been identified?
- Q9.2: Are consultees content with the extent of datasets obtained as part of the desk study?
- Q9.3: Are consultees content with the scope of proposed habitat and protected species surveys?
- Q9.4: Are consultees in agreement with what has been scoped in / out of the assessment and described above?
- Q9.5: Are the consultees content with the approach being undertaken with regard to BNG? Any advice on how the Proposed Development can future proof itself for future changes in statutory requirements would be welcome.

10. GEOLOGY, PEAT AND SOIL

10.1 INTRODUCTION

This chapter outlines the baseline environment, potential impacts, and the proposed methodology to be undertaken for the geology, soil and peat assessment that will be referred to within the ES. The Study Area for the Geology and Peat assessment is illustrated in **Figure 10.1**.

This chapter should be read in conjunction with the description of the Proposed Development presented in **Chapter 2: Project Description** and with reference to relevant parts of other technical chapters such as **Chapter 9: Ecology and Nature Conservation** and **Chapter 11: Water Resources and Flood Risk**.

This chapter is supported by the following figures:

- Figure 10.1: Interpolated Peat Depths.

For the purposes of scoping, the 'Site' refers solely to the wind farm Site and excludes the Cable Corridor Options. The wind farm Site and Cable Corridor Options together comprise the Scoping Boundary, and within this chapter 'the Study Area'.

10.2 LEGISLATION, POLICY AND GUIDANCE

The following legislation, policy and guidance were used in the preparation of this chapter and will be used throughout the Geology, Peat and Soil assessment. This includes legislation relevant to geology, soils and peat environments in the UK, as well as good practice guidance that will be used to inform the ES.

10.2.1 LEGISLATION

- Environmental Protection Act 1990[211]; and
- Waste (England and Wales) Regulations 2011[212].

[211] Environmental Protection Act 1990. (1990) Available online at: https://www.legislation.gov.uk/ukpga/1990/43/contents
[212] The Waste (England and Wales) Regulations 2011. (2011) UK Statutory Instrument No. 988. Available online at: https://www.legislation.gov.uk/uksi/2011/988/contents

10.2.2 NATIONAL PLANNING POLICY

10.2.2.1 NATIONAL POLICY STATEMENTS

The energy National Policy Statements (NPSs), EN-1 – EN-6, outline the government's policy for delivering major energy infrastructure. The NPSs that are of relevance to the Proposed Development are:

- Overarching National Policy Statement for Energy (EN-1)(2025)[213]l
- National Policy Statement for Renewable Energy Infrastructure (EN-3)(2025)[214]; and
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (2025).

Details of specific policies within EN-1, EN-3 and EN-5 that are considered relevant to peat and geology are set out in **Table 10.1**. EN-5 contains no additional requirements with regard to peat and geology.

TABLE 10.1 NATIONAL PLANNING POLICY STATEMENTS

NPS Reference	NPS Requirement
EN-1, paragraph 5.4.18	*"Where the development is subject to EIA the applicant should ensure that the ES clearly sets out any effects on internationally, nationally, and locally designated sites of ecological or geological conservation importance (including those outside England)."*
EN-1, paragraph 5.4.20	*"The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests."*
EN-1, paragraph 5.11.19	*"Applicants should safeguard any mineral resources on the proposed site as far as*

[213] Department for Energy Security & Net Zero. (2025) National Policy Statement for Energy (EN-1). Available online at: https://www.gov.uk/government/publications/national-policy-statement-for-energy-en-1

[214] Department for Energy Security & Net Zero. (2025) National Policy Statement for Renewable Energy Infrastructure (EN-3). Available online at: https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3

NPS Reference	NPS Requirement
	possible, taking into account the long-term potential of the land use after any future decommissioning has taken place."
EN-3 paragraph 2.12.77	*"Onshore wind farm sites within England may be proposed on peatland, however applicants should rule out other locations before siting developments on peatland. In particular, areas of deep peat, which have the highest potential for carbon emissions, should be avoided."*
EN-3 paragraph 2.12.78	*"Where developments are proposed on peatlands, including on deep peat, applicants must conduct a detailed peat survey and must provide justification of the need for infrastructure to be sited on peatland. A geotechnical survey to assess the risk of landslide may also be required where appropriate."*
EN-3 paragraph 2.12.120	*"Applicants must undertake avoidance, management, mitigation or compensatory measures for impact on peatland habitats. For example, restoring disturbed peatland habitats and carrying out additional nature restoration on or off-site."*
EN-3 paragraph 2.12.151	*"Where developments are proposed on peatland, the Secretary of State must be satisfied that the onshore wind farm layout and construction methods have been designed to minimise soil disturbance and other peatland impacts during construction and maintenance of roads, tracks, and other infrastructure. The Secretary of State should be satisfied that areas of deep peat within a site have been avoided through development design."*

10.2.2.2 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)[215]

The following NPPF paragraphs are relevant to geology, hydrogeology and ground conditions assessment:

> *"187. Planning policies and decisions should contribute to and enhance the natural and local environment by:*
>
> *protecting and enhancing values landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*
>
> *recognising […] the wider benefits from natural capital and ecosystem services, including the economic and other benefits of the best and most versatile agricultural land […];*
>
> *[…]*
>
> *e. preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability […]; and*
>
> *f. remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.*
>
> *188. Plans should distinguish between the hierarchy of international, national and locally designated sites [and] allocate land with the least environmental or amenity value […];*
>
> *196. Planning policies and decisions should ensure that:*
>
> *a site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation);*
>
> *after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990; and*

[215] Ministry of Housing, Communities & Local Government. (2025) National Planning Policy Framework (NPPF). Available online at: https://www.gov.uk/government/publications/national-planning-policy-framework

adequate site investigation information, prepared by a competent person, is available to inform these assessments.

197. Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and / or landowner".

10.2.3 LOCAL PLANNING POLICY

Local planning policy relevant to landscape and visual matters will be identified and drawn from the Northumberland Local Plan 2016-2036[216]. Key Policies include:

- Policy POL 2 Pollution and air, soil and water quality; and
- Policy MIN 4 Safeguarding mineral resources.

There are no relevant policies within the Northumberland National Park Local Plan adopted in 2020.

10.2.4 GUIDANCE

- Local Nature Recovery Strategy (LNRS – adopted March 2026)[217];
- Environment Agency (2020) Land Contamination Risk Management[218];
- Department for Food, Environment and Rural Affairs (DEFRA) (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites[219];
- Institute of Sustainability and Environmental Professionals (ISEP) (2022) IEMA Guide: A New Perspective on Land and Soil in Environmental Impact Assessment[220];

[216] Northumberland County Council. (2020) Northumberland Local Plan 2016–2036. Available online at: https://www.northumberland.gov.uk/LocalPlan
[217] Northumberland County Council. (2026) Local Nature Recovery Strategy (LNRS). Available online at: https://www.northumberland.gov.uk/
[218] Environment Agency. (2020) Land Contamination Risk Management (LCRM). Available online at: https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm
[219] Department for Environment, Food and Rural Affairs (Defra). (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. Available online at: https://www.gov.uk/government/publications/code-of-practice-for-the-sustainable-use-of-soils-on-construction-sites
[220] Institute of Environmental Management & Assessment (IEMA). (2022) A New Perspective on Land and Soil in Environmental Impact Assessment. Available online at: https://www.iema.net/resources

- British Standards Institution (BSI). BS 5930:2015+A1:2020 Code of practice for ground investigations (2020)[221];
- CIRIA Report C811 (2023) Environmental Good Practice Onsite (5th Ed)[222];
- HM Government (2023) *Environmental Improvement Plan 2023*. Department for Environment, Food & Rural Affairs[223];
- Forestry Commission, Forest Research and Natural England (2022) *Decision Support Framework for Peatland Protection, the Establishment of New Woodland and Re-establishment of Existing Woodland on Peatland in England*[224];
- Natural England (2025) *England Peat Map (NERR149): Final Report*. Natural England Research Report NERR149[225]; and
- Natural England (2025) Peat Probe Guidance[226]

In lieu of English Guidance:

[221] British Standards Institution (BSI). (2020) BS 5930:2015+A1:2020 Code of practice for ground investigations. Available online at: https://knowledge.bsigroup.com
[222] CIRIA**.** (2023) *C811: Environmental Good Practice Onsite (5th Edition).* London: CIRIA. Available online at: https://www.ciria.org
[223] HM Government. (2023) Environmental Improvement Plan 2023. Department for Environment, Food & Rural Affairs. Available online at: https://www.gov.uk/government/publications/environmental-improvement-plan
[224] Forestry Commission, Forest Research and Natural England. (2022) Decision Support Framework for Peatland Protection, the Establishment of New Woodland and Re-establishment of Existing Woodland on Peatland in England. Updated July 2023. Available online at: https://www.gov.uk/government/publications/decision-support-framework-for-peatland-protection-the-establishment-of-new-woodland-and-re-establishment-of-existing-woodland-on-peatland-in-england
[225] Natural England. (2025) England Peat Map (NERR149): Final Report. Natural England Research Report NERR149. Available online at: https://publications.naturalengland.org.uk/publication/5075614867128320
[226] Natural England (2025) England Peat Map: Peat Probe Guidance [Online] Available online at: NERR149 England Peat Map Final Report - Annex 3 - Peat Probe Guidance.pdf

- Scottish Government (2017) Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments (Second Edition)[227];
- NatureScot (2019) Guidance – Good Practice During Wind Farm Construction. 4th Edition[228]; and
- Scottish Environment Protection Agency (2012). Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and Minimisation of Waste[229].
- Scottish Government's (2017), Guidance on Developments on Peatland: Peatland Survey[230].

10.3 BASELINE CONDITIONS AND KEY SENSITIVITIES

This section sets out the existing ground conditions of the Study Area, including details on the topography, current and historical land use, geology, peat and soils, contaminated land, unexploded ordnance (UXO) risk, and mining activities.

The following data sources have been reviewed as part of the scoping process:

- ESRI World Topographic Mapping[231];
- Google Earth[232];
- National Library of Scotland[233];

[227] Scottish Government. (2017) Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments (Second Edition). Available online at: https://www.gov.scot/publications/peat-landslide-hazard-and-risk-assessments-best-practice-guide
[228] NatureScot. (2019) Guidance: Good Practice During Wind Farm Construction (4th Edition). Available online at: https://www.nature.scot/doc/guidance-good-practice-during-wind-farm-construction
[229] Scottish Environment Protection Agency (SEPA). (2012) Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and Minimisation of Waste. Available online at: https://www.gov.scot/publications/assessment-of-peat-volumes-reuse-of-excavated-peat-and-minimisation-of-waste-guidance
[230] Scottish Government, Scottish Natural Heritage and SEPA (2017) Guidance on Developments on Peatland: Peatland Survey. Online guidance. Available online at: https://www.gov.scot/publications/peatland-survey-guidance-2017/
[231] ESRI (2025) World Topographic Map. Available online at: Esri World Topographic Mapping
[232] Google (2025) Google Earth Historical Imagery. Available online at: Google Earth
[233] National Library of Scotland (2025) Imaged Map. Available online at: Side by side georeferenced maps viewer - Map images - National Library of Scotland

- The British Geological Survey (BGS) GeoIndex Superficial Soils Map[234];
- The BGS GeoIndex Bedrock Geology Map[235];
- The BGS GeoIndex Mines and Quarries Map[236];
- Soilscapes England and Wales Map[237];
- England Peat Map[238];
- Multi-Agency Geographic Information for the Countryside (MAGIC) interactive map[239];
- The Mining Remediation Authority Map Viewer[240]; and
- A Zetica Unexploded Ordnance (UXO) Risk Map[241].
- Topography

The ESRI World Topographic Map indicates the Study Area is situated on elevations ranging from approximately 100 m AOD to 320 m AOD, with Ottercops Moss being the highest point, and lowest points to the southern extent of the Cable Corridor Options. Terrain across the Study Area is generally flat with gentle undulations, with no significant steep slopes other than isolated instances of river valleys and outcropping where vertical exposed bedrock is present.

10.3.1 LAND USE

Aerial imagery and observations during peat probing surveys indicate that the current land use of the Study Area is predominantly upland grazing pasture and plantation forestry across the Site, with agricultural land becoming more predominant to the south along the Cable Corridor Options. Historical mapping

234 British Geological Society (2023) Superficial Soils Map. Available online at: https://mapapps2.bgs.ac.uk/geoindex/home.html
235 British Geological Society (2023) Bedrock Geology Map. Available online at: https://mapapps2.bgs.ac.uk/geoindex/home.html
236 British Geological Society (2023) Mines and Quarries Map [online] Available online at: GeoIndex - British Geological Survey
237 LandIS Soilscape (2025) Map Viewer [online] Available online at: LandIS - Land Information System – Soilscapes soil types viewer
238 Natural England (2025) England Peat Map [Online] Available online at: England Peat Map (EPM) Portal
239 DEFRA (2025) Multi-Agency Geographic Information for the Countryside (MAGIC) interactive map [Online] Available online at: Magic Map Application
240 The Coal Authority (2023) Interactive Map Viewer [online] Available online at: https://mapapps2.bgs.ac.uk/coalauthority/home.html
241 Zetica UXO (2023) UXO Risk Map [Online] Available online at: Risk Maps | Zetica UXO .

and aerial photographs confirm that the Study Area has remained largely undeveloped over time, with consistent land use.

No current landfill or designated waste sites have been identified within the Site. However, one historical landfill site, Frankham Quarry, is located along the Cable Corridor Options, just north of Fourstones.

10.3.2 SUPERFICIAL SOILS

The BGS GeoIndex shows the following superficial soils to be underlying the Site:

- Soil deposits: An absence of recorded superficial soil deposits across a large proportion of the Site, indicating the presence of bedrock at near surface level;
- Peat: Peat is recorded sporadically across the Site with most notable concentrations at Ottercops Moss and Todcrag Moss on the eastern side of the Site;
- Glacial deposits: Devensian Till - Present sporadically across the Site, with a higher concentration in the central and eastern areas; and
- Alluvium: Clay, Sand, Silt and Gravel: A small pocket of Alluvium is recorded in the southwestern corner of the Site.

The BGS GeoIndex shows the following superficial soils to be underlying the Cable Corridor Options:

- River terrace deposits: Silt, sand and gravel present along watercourses;
- Alluvium: Clay, silt, sand and gravel occurring along watercourses;
- Glaciofluvial deposits: Patchy occurrences of sand and gravel along watercourses;
- Diamicton: Till is identified as the predominant superficial deposit underlying much of the cable corridor options;
- Hummocky (moundy) glacial deposits (Devensian Diamicton): Sand and gravel present in the northern section of the Cable Corridor Options, immediately south of the Site;
- Peat: Small, isolated areas of peat recorded along the Cable Corridor Options, with greater prevalence in the northern extent of the Cable Corridor Options; and
- Soil deposits: An absence of recorded superficial soil deposits across localised sections of the Cable Corridor Options, indicating the presence of bedrock at near surface level.

10.3.3 BEDROCK GEOLOGY

The BGS GeoIndex shows the following bedrock geology to be underlying the Site:

- Yordale Group: Comprising of interbedded fine- to medium-grained sandstone, siltstone, seat earth and thin limestone; locally thin coals are developed; local development of volcanic tuffs and basalt lavas. The two main formations in this group are:
  - Alston Formation: Limestone, sandstone, siltstone and mudstone; and

Tyne Limestone Formation: Predominantly composed of limestone, sandstone, siltstone, and mudstone, with isolated beds of pure limestone. In addition, the following igneous intrusion underlies the isolated areas of the eastern and southern sections of the Cable Corridor Options:

- Great Whin Sill: Comprising of a locally pegmatitic quartz-dolerite, with finer grained 'chilled' contact rock.

10.3.4 MINES AND QUARRIES

The BGS GeoIndex Mines and Quarries Map identifies three ceased quarries within the Site

and three active quarries in close proximity to the Site. Active quarries in close proximity to the Site include:

- Darney Quarry – Situated to the south of the Site's western sector (NGR: NY 91232 87934);
- Blaxter Quarry – Positioned north of the forestry block within the western part of the Site (NGR: NY 93120 89965); and
- High Nick Quarry – Lies just east of Darney Quarry (NGR: NY 93090 87480).

The BGS GeoIndex Mines and Quarries Map identifies over sixty ceased quarries within the Cable Corridor Options, and one active quarry listed below:

- Keepershield Quarry – Lies on the eastern extent of the Cable Corridor Options to the west of Haughton Castle and the B6320 (NGR: NY 89335 72545).

10.3.5 SOILS MAPPING

LandIS Soilscapes England and Wales Mapping indicates the following soil types are found across the Study Area:

- Very acid loamy upland soils with a wet peaty surface –located along the western and southwestern portion of the Site, and also extend along the

southern boundary of Ottercops Moss, as well as in sections along the northern extent of Cable Corridor Options 1 and 2, specifically underlying the operational Ray Wind Farm along Cable Corridor Option 2, north west of Sweethope Loughs;

- Slowly permeable wet very acid upland soils with peaty surface- represent the dominant soil type, occurring extensively across the entire Site and present in large expanses along the northern portion of all three Cable Corridor Options;
- Raised bog peat soils –present to the northeastern part of the Site, specifically within Ottercops Moss and Todcrag Moss. Also present in the northern portionof Cable Corridor Options 1 and 2, to the north of the operational Green Rigg Wind Farm.
- Slowly permeable seasonably wet acid loamy and clayey soils is the most dominant soil type in thein the central portion of all three Cable Corridor Options underlying the agricultural land to the west of the Colt Crag Reservoir. For Cable Corridor Option 3 this soil type extends further north than the other two options. In addition, this soil type is present in the southern portion of all three Cable Corridor Options.
- Freely draining slightly acid loamy soils underlying the banks of the North Tyne River and in the southern portion of all three Cable Corridor Options;
- Loamy soils with naturally high groundwater to the south of the North Tyne River underlying along all three Cable Corridor Options; and
- Slightly acid loamy and clayey soils with impeded drainage underlying the southern extent of all three Cable Corridor Options to the southwest of the North Tyne River.

10.3.6 ENGLAND PEAT MAPPING

The England Peat Map provides details on the extent and depth of peat soils, as well as any erosion and drainage features, produced by computer modelling.

The England Peat Map defines peaty soils as any soils with an organic content ≥ 20 % and a thickness ≥ 0.1 m. Deep peat is classed as any peaty soils that are > 0.4 m in depth.

A review of the England Peat Map, indicates peat soil depths across the Study Area are recorded between 0.0 m and > 5.0 m, with deeper areas of peat in the east of the Site at Ottercops Moss and Todcrag Moss. Other areas of notable very deep peat are situated in the central portion of the Site and in the northern extent of the Cable Corridor Options. The England Peat Map's erosion and drainage mapping identifies grips, hags, gullies and bare peat across the

majority of the central and eastern areas of the Site and northern section of the Cable Corridor Options.

10.3.7 COAL MINING

The Mining Remediation Authority Interactive Map Viewer shows that the northwestern corner of the Site is within a coal mining reporting area. No mine entries are reported within the Site.

The map viewer indicates a coal outcrop located approximately 200 m north of the Site, beyond the Site boundary, where probable shallow coal mining workings have been identified and classified as a high-risk zone for development.

No such high-risk zones are present within the boundary of the Site. The remainder of the Site lies outside any coal mining reporting area and is therefore not considered to be at risk from coal mining activities.

The Mining Remediation Authority Map Viewer indicates that a substantial proportion of the Cable Corridor Options lies within a Coal Mining Reporting Area, with several sections identified as Development High Risk Areas. These high-risk zones are located particularly in the western section between Sweethope Loughs and Gunnerton, and to the east of Risdal.

The Development High Risk Areas is the portion of the coal mining reporting area that contains one or more known coal-mining-related features at, or close to, the ground surface. These features may present risks to ground stability and public safety. These areas may include mine entries; recorded and possible unrecorded shallow coal workings; known coal-mining-related hazards; recorded mine gas sites; fissures and breaklines; and former surface mining sites. Any new development proposed within this area will be supported by a Coal Mining Risk Assessment to demonstrate that the Proposed Development can be delivered safely and remains stable, with full consideration of past coal mining activities.

10.3.8 UNEXPLODED ORDNANCE (UXO)

Zetica UXO Risk Maps[242] do not identify any risk areas of Moderate or High within the Study Area of the Proposed Development, as a result of UXO derived from WWII bombings.

[242] Zetica UXO (2026) – UXO Risk Maps [Online]. Available online at: Risk Maps | Zetica UXO

However, a preliminary UXO desk study assessment will be undertaken as part of the EIA, to fully quantify the UXO risk across the Site.

10.3.9 CONTAMINATED LAND

Given the remote location of the Site and its historical land use, the presence of contaminated land across the Site is considered unlikely. While several active quarries are located nearby, namely Keepershield Quarry, Darney Quarry, Blaxter Quarry, and High Nick Quarry, the potential for contamination from these sources is minimal due to their distance and the nature of their operations.

Along the Cable Corridor Options, however, multiple ceased quarries are present and sections of the corridor pass through areas of known coal mining activity, including parts classified as Coal Mining Reporting Areas and Development High Risk Areas. In addition, a historical landfill site, Frankham Quarry, is located just north of Fourstones along the Cable Corridor Options. These features introduce a greater potential for encountering contaminated land and therefore warrant consideration within the EIA.

10.3.9.1 PEAT SURVEY AND INVESTIGATIONS

Based on the potential presence of peat within the Study Area, a Phase 1 Peat Depth Survey was undertaken across the Site only, following Natural England's Peat Probe Guidance[243], which details probing techniques. The survey design was created in accordance with the Scottish Government's Guidance on Developments on Peatland[244] which details best practice for peatland surveys (in the absence of an English equivalent) to inform the preliminary design of the infrastructure layout, with the infrastructure located away from area of peat, where achievable. No peat depth probing has been undertaken along the Cable Corridor Options at this stage. This reflects the scoped nature of the assessment and the early design status of the cable corridors. Details of additional surveys requirements to inform subsequent assessment are provided in **Section 10.5.1.** The initial Phase 1 Peat Depth Survey comprised of probing on a 100 m x 100 m grid across the Site to allow for an initial assessment. Peat depths were recorded using a graduated peat probe, approximately 6 mm in diameter and capable of probing depths of up to 6.2 m.

[243] Natural England (2025) England Peat Map: Peat Probe Guidance [Online] Available at: NERR149 England Peat Map Final Report - Annex 3 - Peat Probe Guidance.pdf

[244] Scottish Government (2017) Guidance on Development on Peatland [Online] Available at: Guidance+on+developments+on+peatland+-+peatland+survey+-+2017.pdf

This was pushed vertically into the ground to refusal where depth and substrate were recorded to an accuracy level of 10cm.

The peat depth survey recorded thicknesses of peat from the surface to refusal, or extent of probe length, between 0.0 m and 6.2 m.

An interpolation of peat depth survey results is illustrated in **Figure 10.1**, while **Table 10.2** gives a summary of recorded peat depths across the Site.

TABLE 10.2 SUMMARY OF PEAT DEPTHS

Peat Depth Range (m)	No. of Probes	Percentage (%)
0.0 – 0.1	416	34.0
0.11- 0.4	496	40.6
0.41 – 1.0	120	9.8
1.01 – 1.5	35	2.9
1.51 - 2.0	36	2.9
2.1 – 3.0	45	3.7
3.01 – 4.0	35	2.9
4.01 – 5.0	30	2.5
> 5.01	9	< 1
Total	1,222	100

Of the 1,222 peat depths recorded during the Phase 1, 34% of probes recorded depths of 0.1 m or less, which are considered non-peat under English guidance. A further 40.6% of probes identified shallow peat deposits across the Site (less than 0.4 m), while the remaining 25.4% indicated deeper peat deposits exceeding 0.4 m in depth.

10.4 POTENTIAL IMPACTS AND LIKELY SIGNIFICANT EFFECTS

At this stage, the main key sensitivities are considered to be:

- Soil type and associated land uses that are highly sensitive (e.g., peat/blanket bog); and
- Highly sensitive soils that have peat deposits (>0.4 m depths).

The following geology and peat impacts have the potential to result from the Proposed Development and shall be considered in the undertaking of further geology and peat assessment:

- Peat stability throughout construction, operation and decommissioning of the Proposed Development;
- Disturbance of Deep Peat during construction and decommissioning;
- Loss and compaction of peat and soils during construction and decommissioning;
- Peat as waste material during construction and decommissioning;
- Coal Mining Reporting Areas and Development High Risk Areas along parts of the Cable Corridor Options introduces the potential for ground instability during construction and decommissioning;
- Contaminated Land throughout construction, operation and decommissioning of the Proposed Development; and
- Cumulative effects on geology, soil and peat_during construction and decommissioning.

10.5 ASSESSMENT METHODOLOGY

The Study Area for the Geology and Peat assessment will be the area within the Site and chosen Cable Corridor Option(s), as there are unlikely to be impacts on geology and peat outside this area. The Site is displayed on **Figure 10.1**.

The proposed methodology will be prepared in line with the guidance and standards listed in **Section 10.1** of this Report.

The purpose of the Geology and Peat assessment will be to:

- Define the peat extent, depth, and properties;
- Identify any areas susceptible to peat slide, using peat thickness and Digital Terrain Model (DTM) data to analyse slopes;
- Advise on the micro-siting of turbines and all other infrastructure to areas consisting of shallow or no peat;
- Assess potential impacts on geology and peat; and
- Develop an acceptable code for construction that will adopt best practice procedures, effective management, and control of on-site activities to reduce or offset any detrimental effects on the geology and peat.

10.5.1 ADDITIONAL PEAT SURVEYS

Peat Probing will be undertaken in accordance with Scottish Government - Guidance on Developments on Peatland and Natural England - Peat Probing Guidance.

Peat Probing will consist of two phases:

- A preliminary phase (Phase 1) – consisting of a 100 m x 100 m grid across the Site (Completed June 2025); and
- Undertaking a ground-truthing exercise along the cable corridor to confirm areas of no peat, supported by targeted peat probing once the proposed infrastructure has been defined (Phase 2). This will focus on the layout of the Proposed Development following design freeze and will comprise of probes at 50 m centres along proposed tracks with 10 m – 25 m offsets either side to allow for micro-siting. Peat probing will also be undertaken over a 100 m x 100 m crosshair at 10 m intervals at each proposed turbine location and as a 10 m x 10 m grid across other proposed infrastructure such as substations and construction compounds, with a 25 m x 25 m grid at proposed borrow pits (where applicable).

10.5.2 COAL MINING RISK ASSESSMENT

A Coal Mining Risk Assessment (CMRA) will need to be undertaken for the chosen cable route if it intersects the Mining Remediation Authority's *Coal Mining Reporting Areas* and *Development High Risk Areas*. The CMRA will form part of the overall assessment methodology and will:

- Review all available Mining Remediation Authority records to identify any documented or inferred shallow workings, mine entries, coal outcrops or areas of past extraction;
- Assess the potential for ground instability, including risks of subsidence, collapse, void migration or differential settlement that may influence construction activities;
- Identify any potential mine gas risks associated with historic coal workings;
- Define the scope of intrusive ground investigation, such as boreholes, probing or geophysical surveys, where required to confirm ground conditions and inform the detailed design of the chosen cable route; and
- Recommend appropriate engineering controls or mitigation measures, including potential refinements to the cable alignment, stabilisation measures or specific trench design requirements, to ensure safe construction.

The outcomes of the CMRA will be used to inform the refinement of the cable route and will be incorporated into the detailed design to ensure that any coal-mining-related risks are fully understood and appropriately managed.

10.6 MITIGATION

Deep peat will avoided during the design of the Proposed Development by siting infrastructure away from those areas, where practiable. Mitigation to prevent peat slides will be provided in a Peat Landslide Hazard Risk Assessment (PLHRA) and mitigation to manage the storing and handling of peat will be provided in an outline Peat Management Plan (oPMP). A Construction Environmental Management Plan (CEMP) will also be prepared in advance of construction in line with good practice, detailing mitigation measurements relating to the management of peat.

10.6.1 PEATLAND LANDSLIDE HAZARD RISK ASSESSMENT

A PLHRA will be undertaken in accordance with the Scottish Government guidance 'Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments (Second Edition)[245] where applicable, and full consultation with the relevant consultees will be undertaken as required.

The PLHRA will contain detailed analysis and reporting on the design freeze and will include a hazard and slope stability assessment and preliminary peat management recommendations.

Hazards on the Site will be ranked based on factors that influence stability, namely peat depth and slope gradient. In addition, potential receptors exposure to risk will be established and hazard rankings applied across the Site, with management and mitigation measures recommended for an acceptable construction.

10.6.2 OUTLINE PEAT MANAGEMENT PLAN

An oPMP will accompany the ES which will include high-level estimation on peat excavation and re-use volumes. This will be based on the approximate infrastructure dimensions and anticipated re-use streams. The oPMP will:

- Define the materials that will be excavated as a result of the Proposed Development, focusing specifically on the excavation of peat;
- Determine volumes of excavated arisings, the cut / fill balance of the Proposed Development and proposals for re-use or reinstatement of excavated materials; and

[245] Scottish Government (2017) Proposed electricity generation developments: peat landsclide hazard best practice guide (second edition). Available online at: https://www.gov.scot/publications/peat-landslide-hazard-risk-assessments-best-practice-guide-proposed-electricity/

- Detail management techniques for handling, storing and depositing peat for reinstatement.

10.7 SCOPE OF ES CHAPTER

Table 10.3 presents the environmental factors relating to geology, soils and peat that are proposed to be scoped in to or scoped out of the assessment and identifies the relevant phase(s) of the Proposed Development to which each factor applies, namely construction, operation and decommissioning.

TABLE 10.3 ENVIRONMENTAL FACTORS TO BE SCOPED IN OR OUT OF THE ASSESSMENT

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
Peat Stability	Scoped In	Peat instability is generally the result of a combination of causative factors. During the construction, operation and decommissioning phases, several project-related activities have the potential to increase the likelihood of peat slides in areas where peat is present at sufficient depth and where ground gradients are sufficiently steep to give rise to a peat slide event. Peat stability will be assessed as part of the PLHRA. The PLHRA will be informed by peat probing data and desk-based assessments, which together will be used to evaluate the stability of the substrate and the risk of peat stability-related failures within the Study Area across all project phases.
Disturbance of Deep Peat	Scoped In	Where construction or decommissioning activities take place in areas underlain by peat, some disturbance of peat is likely to occur. The oPMP will identify areas of deep peat (defined as peat greater than 0.4 m in depth), and this information will be used to inform project design and construction methodology during both the construction and decommissioning phases, with the aim of minimising disturbance of deep peat as far as is reasonably practicable.
Loss and Compaction of Peat and Soils	Scoped In	The loss and compaction of peat and soils could occur where development takes place in areas underlain by peat during the construction and decommissioning phases. Even where direct impacts on peat are avoided, construction and decommissioning activities have the potential to result in soil compaction. This may reduce soil permeability and increase the risk of surface water

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
		run-off and erosion. These potential effects will be assessed and, where required, mitigated through the oPMP.
Peat as Waste Material	Scoped In	Where peat is disturbed during the construction and decommissioning phases, it will be reused on Site as far as is reasonably practicable. Depending on the quantities of peat excavated, areas within the Proposed Development may be required for peatland restoration. The management, reuse and restoration of peat will be set out and addressed within the oPMP.
Mining	Scoped In	Given the presence of the coal mining reporting area identified along the Cable, it is recommended that a mining is assessed within the EIA.
UXO Risk	Scoped In	A preliminary UXO desk study assessment will be undertaken as part of the EIA.
Impact on Geology and Soils	Scoped In	Earthworks, foundations, tracks and other infrastructure have the potential to affect geology and soils. These impacts will be assessed within the EIA, taking account of baseline conditions, construction activities and decommissioning, and guided by appropriate standards and professional judgement.
Contaminated Land	Scoped In	Given the historical land use and remote setting of the Study Area, the presence of contaminated land during the construction and decommissioning phases of the Proposed Development is considered unlikely. However given the historical land use, including coal mining, quarrying and landfills along the Cable Corridor Options contaminated land will be assessed within the EIA.

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
Cumulative effects on geology, soil and peat	Scoped Out	Construction and decommissioning activities involving soil and peat excavation or handling represent the primary project activities with the potential to affect geology, soil and peat within the Study Area. Effects on geology, soil and peat are inherently localised, site-specific, and confined to the footprint of the Proposed Development. As there are no pathways for interaction with effects arising from other developments, cumulative effects in relation to geology, soil and peat are scoped out. Consequently, nearby developments are not anticipated to influence geology, soils or peat within the Study Area.

10.8 CONSULTATION AND SCOPING QUESTIONS

Consultation will be conducted with the following consultees:

- Northumberland County Council;
- Natural England;
- The Environment Agency;
- North East Combined Authority; and,
- The Mining Remediation Authority.

Key questions for consultees are:

- Q10.1 - Do you agree that the data sources identified are sufficient to inform the Geology and Peat baseline for the EIA (and therefore that no further baseline data collection is merited)?
- Q10.2 - Have all Geology and Peat receptors and potential impacts that could result from the Proposed Development been identified?
- Q10.3 - Do you agree with the proposed approach to assessment for each of the impacts in **Section 10.4** and scoped in or out of the ES Report in **Section 10.7** for Geology and Peat?
- Q10.4 - Do you agree that the embedded mitigation measures described provide a suitable means for managing and mitigating the relevant potential effects of the Proposed Development on Geology and Peat receptors?
- Q10.5 - Do you have any information that will be useful in the preparation of the Geology and Peat assessment, such as information on local quarrying or infilled land?

11. WATER RESOURCES AND FLOOD RISK

11.1 INTRODUCTION

This chapter outlines the water resources and flood risk baseline conditions of the Scoping Boundary, the potential impacts that could result from the Proposed Development, approach to mitigation and assessing the likely significant effects of the Proposed Development, and the scope of the Water Resources and Flood Risk ES chapter.

This chapter is supported by the following figures:

- Figure 11.1: Water Resources and Flood Risk Study Area;
- Figure 11.2: Surface Water Hydrology;
- Figure 11.3: WFD Hydrology;
- Figure 11.4: Groundwater Bodies;
- Figure 11.5: Hydrogeology;
- Figure 11.6: EA Flood Map Rivers and Sea;
- Figure 11.7: EA Surface Water Flood Map; and
- Figure 11.8: EA Reservoir Flood Map.

There is no set guidance for defining hydrological study areas for EIAs in the UK. As such, the Study Area for the Proposed Development is based on professional judgment and experience on projects of a similar nature and scale. For the purposes of Scoping, the water resources and flood risk study area is a 1 km buffer of the Site with the addition of the Cable Corridor Options (unbuffered) (the 'Study Area'). The Study Area is shown in **Figure 11.1: Water Resources and Flood Risk Study Area.**

11.2 LEGISLATION, POLICY AND GUIDANCE

11.2.1 LEGISLATION

The Water Framework Directive (WFD) (2000/60/EC)[246] establishes a framework for the protection, improvement, and sustainable use of all water environments through setting ecological targets and environmental objectives. This directive resulted in the Water Environment (Water Framework Directive)

[246] European Parliament (2000) *Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy ("The Water Framework Directive").* Available online at: https://environment.ec.europa.eu/topics/water/water-framework-directive_en

(England and Wales) Regulations 2017[247], which transposed the WFD into law in England and Wales.

Other legislation relevant to this assessment are:

- Water Act 2014[248];
- Land Drainage Act 1991[249];
- Water Resources Act 1991[250];
- Environment Act 2021[251];
- Environmental Protection Act 1990[252];
- The Environmental Permitting (England and Wales) Regulations 2016[253];
- The Control of Pollution (Oil Storage) (England) Regulations 2001[254];
- The Environmental Damage (Prevention and Remediation) (England) Regulations 2015[255];
- The Flood Risk (England and Wales) Regulations 2009[256];
- Flood and Water Management Act 2010[257];
- The Water Supply (Water Quality) Regulations 2018[258]; and

[247] UK Government. *The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017.* Available online at: https://www.legislation.gov.uk/uksi/2017/407/contents
[248] UK Government. *Water Act 2014.* Available online at: https://www.legislation.gov.uk/ukpga/2014/21/contents
[249] UK Government. *Land Drainage Act 1991.* Available online at: https://www.legislation.gov.uk/ukpga/1991/59/contents
[250] UK Government. *Water Resources Act 1991.* Available online at: https://www.legislation.gov.uk/ukpga/1991/57/contents
[251] UK Government. *Environment Act 2021.* Available online at: https://www.legislation.gov.uk/ukpga/2021/30/contents
[252] UK Government. *Environmental Protection Act 1990.* Available online at: https://www.legislation.gov.uk/ukpga/1990/43/contents
[253] UK Government. *The Environmental Permitting (England and Wales) Regulations 2016.* Available online at: https://www.legislation.gov.uk/uksi/2016/1154/contents
[254] UK Government. *The Control of Pollution (Oil Storage) (England) Regulations 2001.* Available online at: https://www.legislation.gov.uk/uksi/2001/2954/contents
[255] UK Government. *The Environmental Damage (Prevention and Remediation) (England) Regulations 2015.* Available online at: https://www.legislation.gov.uk/uksi/2015/810/contents
[256] UK Government. *The Flood Risk Regulations 2009.* Available online at: https://www.legislation.gov.uk/uksi/2009/3042/made
[257] UK Government. *The Flood and Water Management Act 2010.* Available online at: https://www.legislation.gov.uk/ukpga/2010/29/contents
[258] UK Government. *The Water Supply (Water Quality) Regulations 2018.* Available online at: https://www.legislation.gov.uk/wsi/2018/647/contents

- The Private Water Supplies (England) (Amendment) Regulations 2018[259].

11.2.2 NATIONAL PLANNING POLICY

11.2.2.1 NATIONAL POLICY STATEMENTS

The energy National Policy Statements (NPSs) provide the primary policy basis for the consideration of Nationally Significant Infrastructure Projects (NSIPs). Policies EN-1 to EN-6 outline the government's policy for delivering major energy infrastructure. The NPSs that are of relevance to the Proposed Development are the:

- Overarching National Policy Statement for Energy (NPS EN-1) (2025)[260];
- National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) (2025)[261]; and
- National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) (2025)[262].

Details of specific policies within EN-1, EN-3 and EN-5 that are considered relevant to water resources are set out in **Table 11.1**.

TABLE 11.1 NATIONAL PLANNING POLICY STATEMENTS

NPS Reference	NPS Requirement
EN-1, paragraph 4.10.5-6	" *In certain circumstances, measures implemented to ensure a scheme can adapt to climate change may give rise to additional impacts, for example as a result of protecting against flood risk, there may be consequential*

[259] UK Government. *The Private Water Supplies (England) (Amendment) Regulations 2018.* Available online at: https://www.legislation.gov.uk/uksi/2018/707/contents/made
[260] UK Government (2025) *Overarching National Policy Statement for Energy (EN-1)* Available online at: https://assets.publishing.service.gov.uk/media/695d1015f41883f4e50ed9ab/overarching-national-policy-statement-for-energy-en-1-web-accessible.pdf
[261] UK Government (2025) *National Policy Statement for Renewable Energy Infrastructure (EN -3)* Available online at: https://assets.publishing.service.gov.uk/media/695d1368b5c46330350ed9a2/national-policy-statement-for-renewable-energy-infrastructure-en-3-web-accessible.pdf
[262] UK Government (2025). *National Policy Statement for electrical networks infrastructure (EN -5).* Available online at: https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5-2025

NPS Reference	NPS Requirement
	impacts on coastal change. In preparing measures to support climate change adaptation, applicants should take reasonable steps to maximise the use of nature-based solutions alongside other conventional techniques." *"Integrated approaches, such as looking across the water cycle, considering coordinated management of water storage, supply, demand, wastewater, and flood risk can provide further benefits to address multiple infrastructure needs, as well as carbon sequestration benefits."*
EN-1, paragraph 4.10.9	*" The ES should set out how the proposal will take account of the projected impacts of climate change, using government guidance and industry standard benchmarks such as the Climate Change Allowances for Flood Risk Assessments, Climate Impacts Tool, and British Standards for climate change adaptation, in accordance with the EIA Regulations."*
EN-1, paragraph 5.8.13	*"A site-specific flood risk assessment should be provided for all energy projects in Flood Zones 2 and 3 in England or Zones B and C in Wales. In Flood Zone 1 in England or Zone A in Wales, an assessment should accompany all proposals involving:* • *sites of 1 hectare or more* • *land which has been identified by the Environment Agency or NRW as having critical drainage problems* • *land identified (for example in a local authority strategic flood risk assessment) as being at increased flood risk in future*

NPS Reference	NPS Requirement
	• *land that may be subject to other sources of flooding (for example surface water)* • *where the Environment Agency or Natural Resources Wales (NRW), Lead Local Flood Authority, Internal Drainage Board or other body have indicated that there may be drainage problems".*
EN-1, paragraph 5.8.14	*"This assessment should identify and assess the risks of all forms of flooding to and from the project and demonstrate how these flood risks will be managed, taking climate change into account".*
EN-, paragraph 5.8.15	*"The minimum requirements for Flood Risk Assessments (FRA) are that they should:* • *be proportionate to the risk and appropriate to the scale, nature and location of the project;* • *consider the risk of flooding arising from the project in addition to the risk of flooding to the project;* • *take the impacts of climate change into account, across a range of climate scenarios, clearly stating the development lifetime over which the assessment has been made;* • *be undertaken by competent people, as early as possible in the process of preparing the proposal;* • *consider both the potential adverse and beneficial effects of flood risk management infrastructure, including raised defences, flow channels, flood storage areas and other artificial features, together with the*

NPS Reference	NPS Requirement
	consequences of their failure and exceedance; • *consider the vulnerability of those using the site, including arrangements for safe access and escape;* • *consider and quantify the different types of flooding (whether from natural and human sources and including joint and cumulative effects) and include information on flood likelihood, speed-of-onset, depth, velocity, hazard and duration;* • *identify and secure opportunities to reduce the causes and impacts of flooding overall, making as much use as possible of natural flood management techniques as part of an integrated approach to flood risk management;* • consider the effects of a range of flooding events including extreme events on people, property, the natural and historic environment and river and coastal processes; • include the assessment of the remaining (known as 'residual') risk after risk reduction measures have been taken into account and demonstrate that these risks can be safely managed, ensuring people will not be exposed to hazardous flooding; • consider how the ability of water to soak into the ground may change with development, along with how the proposed layout of the project may affect drainage systems. Information should include: • Describe the existing surface water drainage arrangements for the site;

NPS Reference	NPS Requirement
	• Set out (approximately) the existing rates and volumes of surface water run-off generated by the site. Detail the proposals for restricting discharge rates; • Set out proposals for managing and discharging surface water from the site using sustainable drainage systems and accounting for the predicted impacts of climate change. If sustainable drainage systems have been rejected, present clear evidence of why their inclusion would be inappropriate; • Demonstrate how the hierarchy of drainage options has been followed; • Explain and justify why the types of SuDS and method of discharge have been selected and why they are considered appropriate; • Explain how sustainable drainage systems have been integrated with other aspects of the development such as open space or green infrastructure, so as to ensure an efficient use of the site; • Describe the multifunctional benefits the sustainable drainage system will provide; • Set out which opportunities to reduce the causes and impacts of flooding have been identified and included as part of the proposed sustainable drainage system; • Explain how run-off from the completed development will be prevented from causing an impact elsewhere; • Explain how the sustainable drainage system been designed to facilitate maintenance and, where relevant, adoption. Set out plans for ensuring an acceptable

NPS Reference	NPS Requirement
	standard of operation and maintenance throughout the lifetime of the development; • detail those measures that will be included to ensure the development will be safe and remain operational during a flooding event throughout the development's lifetime without increasing flood risk elsewhere; • identify and secure opportunities to reduce the causes and impacts of flooding overall during the period of construction; and • be supported by appropriate data and information, including historical information on previous events".
EN-1, paragraph 5.8.21	*"The Sequential Test ensures that a sequential, risk-based approach is followed to steer new development to areas with the lowest risk of flooding, taking all sources of flood risk and climate change into account. Where it is not possible to locate development in low-risk areas, the Sequential Test should go on to compare reasonably available sites with medium risk areas and then, only where there are no reasonably available sites in low and medium risk areas, within high-risk areas".*
EN-1, paragraph 5.8.27	*"The surface water drainage arrangements for any project should, accounting for the predicted impacts of climate change throughout the development's lifetime, be such that the volumes and peak flow rates of surface water leaving the site are no greater than the rates prior to the proposed project, unless specific off-site arrangements are made and result in the same net effect".*

NPS Reference	NPS Requirement
EN-1, paragraph 5.8.29	*"The sequential approach should be applied to the layout and design of the project. Vulnerable aspects of the development should be located on parts of the site at lower risk and residual risk of flooding. Applicants should seek opportunities to use open space for multiple purposes such as amenity, wildlife habitat and flood storage uses. Opportunities should be taken to lower flood risk by reducing the built footprint of previously developed sites and using SuDS".*
EN-1, paragraph 5.16.3	*"Where the project is likely to have effects on the water environment, the applicant should undertake an assessment of the existing status of, and impacts of the proposed project on, water quality, water resources and physical characteristics of the water environment, and how this might change due to the impact of climate change on rainfall patterns and consequently water availability across the water environment, as part of the ES or equivalent".*
EN-1, paragraph 5.16.4	*"The applicant should make early contact with the relevant regulators, including the local authority, the Environment Agency and Marine Management Organisation, where appropriate, for relevant licensing and environmental permitting requirements".*
EN-1, paragraph 5.16.5	*"Where appropriate, applicants should manage surface water during construction by treating surface water runoff from exposed topsoil prior to discharging and to limit the discharge of suspended solids e.g. from car parks or other areas of hard standing, during operation."*

NPS Reference	NPS Requirement
EN-1, paragraph 5.16.7	*"The ES should in particular describe:* • *the existing quality of waters affected by the proposed project and the impacts of the proposed project on water quality, noting any relevant existing discharges, proposed new discharges and proposed changes to discharges;* • *existing water resources affected by the proposed project and the impacts of the proposed project on water resources, noting any relevant existing abstraction rates, proposed new abstraction rates and proposed changes to abstraction rates (including any impact on or use of mains supplies and reference to Abstraction Licensing Strategies) and also demonstrate how proposals minimise the use of water resources and water consumption in the first instance;* • *existing physical characteristics of the water environment (including quantity and dynamics of flow) affected by the proposed project and any impact of physical modifications to these characteristics;* • *any impacts of the proposed project on water bodies or protected areas (including shellfish protected areas) under the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 and source protection zones (SPZs) around potable groundwater abstractions;* • how climate change could impact any of the above in the future; and • any cumulative effects"

NPS Reference	NPS Requirement
EN-3 paragraph 2.12.64-66	*"Where access tracks are required, permeable tracks should be used, and Sustainable Drainage Systems (SuDS), such as swales and infiltration trenches, should be used to control any run-off where recommended. Tracks and drains can have significant impacts on the structure and hydrology of peat115, and designs should seek to avoid, and then mitigate any such impacts."* *"Sites should be configured or selected to avoid the need to impact on existing drainage systems and watercourses."* *"Culverting existing watercourses/drainage ditches should be avoided insofar as practically possible. Where culverting for access is unavoidable, applicants should demonstrate that no reasonable alternatives exist."*
EN-5 paragraph 2.3.2"	*"As climate change is likely to increase risks to the resilience of some of this infrastructure, from flooding for example, or in situations where it is located near the coast or an estuary or is underground, applicants should in particular set out to what extent the proposed development is expected to be vulnerable, and, as appropriate, how it has been designed to be resilient to:* *• Flooding, particularly for substations that are vital to the network; and especially in light of changes to groundwater levels resulting from climate change.."*

11.2.2.2 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

The National Planning Policy Framework (NPPF)[263] sets out the UK Government's planning policies for England. Supporting NPPF are planning practice guidance of which the following are of relevance: Water Supply, Wastewater and Water Quality[264] and Flood Risk and coastal change[265].

The primary objectives of the NPPF, with regard to flood risk, are to incorporate considerations of flood risk throughout the planning process, preventing unsuitable development in flood-prone zones and guiding development away from high-risk areas. Where development in flood-prone areas is unavoidable, the policy aims to guarantee safety measures, preventing the increase of flood risk elsewhere and minimising the overall risk of flooding.

According to the NPPF an FRA is mandatory for all developments situated in Flood Zones 2 or 3, as well as for sites exceeding 1 hectare. The purpose of the FRA is to evaluate the potential impact of flooding on Application Proposals and to gauge the flood risk to third parties associated with these proposals.

The NPPF requires the application of a risk-based flood risk sequential test to guide new developments towards areas with the lowest probability of flooding. Additionally, it aligns the flood risk vulnerability of a development proposal with the appropriate Flood Zones.

11.2.3 LOCAL PLANNING POLICY

The Study Area is located within the Northumberland County Council area and they are the LLFA. The Study Area is not located within any IDB districts or Critical Drainage Areas (CDAs), thus there are no locally identified areas of managed drainage concern.

This assessment has been made with consideration of the following local policy:

[263] UK Government (2024) *National Planning Policy Framework.* Available online at: https://assets.publishing.service.gov.uk/media/67aafe8f3b41f783cca46251/NPPF_December_2024.pdf
[264] UK Government (2019) *Water supply, wastewater and water quality.* Available online at: https://www.gov.uk/guidance/water-supply-wastewater-and-water-quality
[265] UK Government (2025) *Flood risk and coastal change.* Available online at: https://www.gov.uk/guidance/flood-risk-and-coastal-change

- Northumberland Local Plan 2016-2036[266] (adopted 2022) sets out the following policies related to water resources and flood risk:
  - ENV 1: Approaches to assessing the impact of development on the natural, historic and built environment (Strategic Policy);
  - WAT 1: Water Quality;
  - WAT 2: Water Supply and Sewerage;
  - WAT 3: Flooding;
  - WAT 4: Sustainable Drainage Systems; and
  - POL 2: Pollution and air, soil and water quality.

11.2.4 GUIDANCE

In addition, to specific legislative and planning policy requirements, a range of guidance documents have been published to provide information on statutory responsibilities and good environmental practices. The following guidance documents will inform the impact assessment and be taken into consideration during production of the final Construction Environmental Management Plan (CEMP):

- North East Combined Authority (NECA) Draft Local Nature Recovery Strategy for the North of Tyne[267];
- Northumberland Level 1 Strategic Flood Risk Assessment (2010)[268];

[266] Northumberland County Council (2022) *Northumberland Local Plan 2016-2036*. Available online at: https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Planning-and-Building/planning%20policy/Local%20Plan/Northumberland-Local-Plan-Adopted-March-2022.pdf

[267] North East Combined Authority (2025) *Draft Local Nature Recovery Strategy for the North of Tyne* Available online at: https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Economy-and-Regeneration/LNRS/Draft%20Local%20Nature%20Recovery%20Strategy%20for%20North%20of%20Tyne.pdf

[268] Scott Wilson – Prepared for Northumberland County Council (2010*) Northumberland Level 1 Strategic Flood Risk Assessment.* Available online at: https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Planning-and-Building/planning%20policy/Studies%20and%20Evidence%20Reports/Flood%20Water%20Studies/1.%20SFRA%20Level%201/Level-1-SFRA-September-2010.pdf

- Northumberland Level 2 Strategic Flood Risk Assessment (2015)[269]; and
- Northumberland Local Flood Risk Management Strategy (2015)
- Construction Industry Research and Information Association (CIRIA):
  - Control of Water Pollution from Construction Sites (C532)[270];
  - Environmental good practice on site guide (C741)[271];
  - The SuDS Manual (C753)[272]; and
  - Culvert, screen and outfall manual (C786F)[273].
- EA Guidance:
  - Applying for a water abstraction or impounding license[274];
  - Discharges to surface water and groundwater: environment permits[275];
  - Oil storage regulations for businesses[276];
  - Flood risk activities: environmental permits[277]; and

[269] URS – Prepared for Northumberland County Council (2015*) Northumberland Level 2 Strategic Flood Risk Assessment*. Available online at: https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Planning-and-Building/planning%20policy/Core%20strategy/Evidence%20based/EB16-Northumberland-Strategic-Flood-Risk-Assessment-Level-2-October-2015.pdf
[270] CIRIA (2001) *Control of water pollution from construction sites: Guidance for consultants and contractors* Available online at: https://www.ciria.org/CIRIA/CIRIA/Item_Detail.aspx?iProductCode=C532&Category=BOOK
271 CIRIA (2023) *Environmental good practice on site guide (fifth edition).* Available online at: https://www.ciria.org/ci/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=C811&Category=BOOK
[272] CIRIA (2015) *The SuDS Manual (C753).* Available online at: https://www.susdrain.org/resources/SuDS_Manual.html
[273] CIRIA (2019) *Culvert, screen and outfall manual (C786F).* Available online at: https://www.ciria.org/CIRIA/Books/Free_publications/C786F.aspx
[274] EA (2025). *Guidance: Apply for a water abstraction or impounding licence.* Available online at: https://www.gov.uk/guidance/water-management-apply-for-a-water-abstraction-or-impoundment-licence
[275] EA (2024). *EA Guidance: Discharges to surface water and groundwater: environment permits.* Available online at: https://www.gov.uk/guidance/discharges-to-surface-water-and-groundwater-environmental-permits
[276] EA (2023). *Guidance: Oil storage regulations for businesses*. Available online at: https://www.gov.uk/guidance/storing-oil-at-a-home-or-business
[277] EA (2025). *Guidance: Flood risk activities: environmental permits.* Available online at: https://www.gov.uk/guidance/flood-risk-activities-environmental-permits

- Manage water on land: guidance for land managers[278].

- Other Guidance
  - British Standard Code of Practice for Earthworks BS 6031 2009[279];
  - Highways England. Road drainage and the water environment (2020)[280]; and
  - National standards for sustainable drainage systems (SuDS)[281].

11.3 BASELINE CONDITIONS AND KEY SENSITIVITIES

The following section sets out the baseline water resources and flood risk conditions of the Study Area. Please refer to **Chapter 2** of this Report for details on general Site context.

11.3.1 SURFACE WATER HYDROLOGY

The Study Area is situated within the Northumbria WFD River Basin district[282]. Within this district, the Study Area is spread across two WFD surface water management catchments[283], the Northumberland Rivers catchment in the east and the Tyne catchment in the west.

Ordnance Survey (OS) mapping shows there are numerous surface watercourses within the Study Area. These are a combination of named and unnamed 'Ordinary' rivers and EA 'Main' rivers. The only EA Main Rivers in the Study Area are the River Rede which flows south in the western Study Area but

[278] EA (2024). *Guidance: Manage water on land: guidance for land managers.* Available online at: https://www.gov.uk/guidance/manage-water-on-land-guidance-for-land-managers
[279] The British Standards Institute (BSI) (2009) *BS 6031:2009 Code of practice for earthworks.* Available online at: https://knowledge.bsigroup.com/products/code-of-practice-for-earthworks
[280] Highways England (2020). *LA 113. Road drainage and the water environment. Revision 1*. Available online at: https://www.standardsforhighways.co.uk/tses/attachments/by-attachment-id/02e8dce4-f853-4f27-8ea4-a83c57343c12?inline=true
[281] Department for Environment, Food & Rural Affairs (2025). *Guidance: National standards for sustainable drainage systems (SuDS).* Available at: https://www.gov.uk/government/publications/national-standards-for-sustainable-drainage-systems/national-standards-for-sustainable-drainage-systems-suds
[282] EA (2025) *WFD River Basin Districts Cycle 2.* Available online at: https://www.data.gov.uk/dataset/368ae5fb-65a1-4f19-98ff-a06a1b86b3fe/wfd-river-basin-districts-cycle-2
[283] EA (2025) *WFD Surface Water Management Catchments Cycle 2.* Available online at: https://www.data.gov.uk/dataset/1a494e3e-e414-456c-9c2e-ca367a2945b6/wfd-surface-water-management-catchments-cycle-2

does not enter the Site; and the River North Tyne which crosses the south of the Study Area. Named ordinary rivers of note in the Study Area include the Black Burn which originates at Blaxter Lough in the centre of the Site and flows west to discharge into the River Rede; and the Ottercops Burn which flows east out of the Site. The surface water hydrology of the Site is shown in **Figure 11.2: Surface Water Hydrology**.

There is one WFD watercourse[284] within the Site which flows west to east through the centre of the Site and out into the wider Study Area. Under the WFD datasets it is known as the Hart Burn but is named the Ottercops Burn on OS mapping within the Site and until it reaches the eastern boundary of the Study Area. The river has an ecological WFD classification of poor. The Birky Burn is the only OS named watercourse within the Study Area which discharges into the Ottercops Burn along with numerous smaller unnamed watercourses. The Ottercops / Hart Burn flows southeast from the Study Area to its confluence with the River Wansbeck 12 km southeast of the Study Area. The WFD surface water management catchments and watercourses are shown in **Figure 11.3: WFD Hydrology**.

The Rede Burn is also a WFD watercourse and flows north to south through the western Study Area. It has an ecological WFD status of good. Numerous named and unnamed watercourses discharge into the Rede Burn, including the Black Burn and its tributaries which make up the majority of the hydrological catchment area of the western Site. The WFD watercourses Miller Burn and Elsdon Burn flow into the Rede Burn in the northwest of the Study Area, and the Lisles Burn in the southwest, all of which have a WFD ecological status of good. The Rede Burn flows southwest from the Study Area to its confluence with the North Tyne River 6.8 km southwest of the Study Area.

There are three named surface waterbodies within the Study Area including Ravens Cleugh to the north of the Site and Blaxter Lough and Wishaw Lough in the centre of the Site.

All Cable Corridor Options cross numerous OS 1:50,000 scale mapped watercourses and waterbodies, some of which are designated under the WFD, and all Cable Corridor Options cross over the North Tyne "Main River" as designated by the EA.

[284] EA (2026) *Water Framework Directive (WFD) River, Canal, and Surface Water Transfer Water Bodies Cycle 3 Classification 2019 (Full Resolution).* Available online at: https://environment.data.gov.uk/dataset/925db33a-3b21-410e-b2a7-1246a6d2a755

Cable Corridor Option 1 crosses six WFD watercourses: the Lisles Burn, the Rede Burn, the River Wansbeck, the Gunnerton Burn, the North Tyne, and the Simon Burn. These all have a WFD ecological classification of good.

Cable Corridor Option 2 crosses four WFD watercourses: the River Wansbeck, the Gunnerton Burn, the North Tyne, and the Simon Burn. There is one WFD waterbody within Cable Corridor Option 2 which is Sweethope Loughs, this has an ecological classification of moderate.

Cable Corridor Option 3 crosses five WFD watercourses: the Ray Burn, which has an ecological classification of poor, the River Wansbeck, the Gunnerton Burn, the North Tyne, and the Simon Burn. There is one WFD waterbody within Cable Corridor Option 3, however it is right on the southern fringes of the corridor with only small areas within it. This is the Colt Crag Reservoir which has an ecological classification of moderate.

11.3.2 HYDROGEOLOGY

The EA WFD groundwater bodies dataset[285] shows the Study Area is within the Northumbria groundwater body, which is further subdivided into two geological units as shown in **Figure 11.4: Groundwater Bodies**. The eastern Study Area is underlain by Northumberland Carboniferous Limestone and Coal Measures and is classified under the WFD as having an overall status of poor (see further information in **Chapter 10: Geology and Peat**). The western Study Area is underlain by Tyne Carboniferous Limestone and is classified under the WFD as having an overall status of good.

British Geological Survey (BGS) Hydrogeology 1:625,000 scale mapping[286] is shown in **Figure 11.5: Hydrogeology**. This identifies that the Study Area is underlain by the Yoredale Group which is a moderately productive aquifer where flow is virtually all through fractures and other discontinuities.

All Cable Corridor Options are underlain by the Northumbria groundwater body. This is further subdivided into three geological units: the majority of the Cable Corridor Options are underlain by the Tyne Carboniferous Limestone which is classified under the WFD as having an overall status of good. The northern sections of Cable Corridor Option 2 and Cable Corridor Option 3, and a small

[285] EA (2025) *Water Framework Directive (WFD) Groundwater Bodies Cycle 3 Classification 2022 (Full Resolution).* Available online at: https://environment.data.gov.uk/dataset/9408ba76-437b-4807-9cb5-af4759da3933

[286] BGS (n.d.) *Geoindex Onshore – Hydrogeology 1:625,000 scale.* Available online at: https://mapapps2.bgs.ac.uk/geoindex/home.html

section in the north of Cable Corridor Option 1 is underlain by the Northumberland Carboniferous Limestone and Coal Measures, which is classified under the WFD as having an overall status of poor. The southern section of all Cable Corridor Options is underlain by Tyne Carboniferous Limestone and Coal Measures, which is classified under the WFD as having an overall status of poor.

BGS Hydrogeology 1:625,000 scale mapping shows that all Cable Corridor Options are underlain by moderately productive aquifers. These are the Yoredale Group aquifer, which is a Class 2B aquifer where flow is virtually all through fractures and other discontinuities, and unnamed igneous intrusions in the south of all Cable Corridor Options and small parts in the northern section of Cable Corridor Option 3 which are also indicated to have flow virtually all through fractures and other discontinuities.

11.3.3 WATER RESOURCES

11.3.3.1 PRIVATE WATER SUPPLIES

The location of private water supplies (PWS) within the Study Area is currently unknown. Northumberland County Council will be contacted as part of the ES to discover the location of any known PWS within the Study Area.

11.3.3.2 LICENCED ABSTRACTIONS AND DISCHARGE CONSENTS

No information on licenced abstractions or discharge consents within the Study Area is held at the time of writing. The EA will be contacted as part of the EIA process to confirm the location of either.

11.3.3.3 PUBLIC WATER SUPPLIES

It is not known at this stage if there are any public water supplies / assets within the Study Area. Northumbrian Water will be contacted as part of the ES to confirm the location of any public water assets within the Study Area.

11.3.3.4 DRINKING WATER PROTECTED AREAS

There are no EA designated drinking water protected areas (DWPA) within the northern Study Area[287]. However, the southern end of the Study Area is located within a surface water DWPA (the North Tyne from Barrasford to South Tyne confluence). The Colt Crag Reservoir, which is marginally within Cable Corridor Option 3, is also classified as a DWPA.

[287] EA (2026) *Drinking Water Protected Areas (Surface Water).* Available online at: https://www.data.gov.uk/dataset/3d136e9a-78cf-4452-824d-39d715ba5b69/drinking-water-protected-areas-surface-water

There are no drinking water safeguard zones within the Study Area.

11.3.3.5 SOURCE PROTECTION ZONES

There are no EA designated groundwater source protection zones within the Study Area[288].

11.3.4 FLOOD RISK

11.3.4.1 RIVERS AND SEA

The EA Flood Map for planning[289] shows that the Site falls within Flood Zone 3, land defined as having a 1% or higher annual probability of flooding from rivers, or 0.5% from the sea. The Site also falls within Flood Zone 2 land defined as having a 0.1%-1% annual probability of flooding from rivers, or between 0.1%-0.5% from the sea. The EA flood maps indicate the primary flood risk within the Site is from the Ottercops Burn and Black Burn, with flood extents limited to the primary corridor of the watercourses.

Within the wider Study Area, the Rede Burn in the west is at risk of flooding, with particularly extensive flood extents where the Miller Burn, Elsdon Burn, and Bayless Burn converge in the northwest of the Study Area. In the east of the Study Area flood risk is from the Cowford Sike and Fairnly Burn.

All Cable Corridor Options are within Flood Zones 2 and 3 for rivers, with flood extents concentrated in watercourses corridors and at waterbodies. The exception is at the North Tyne River in the south of the Cable Corridor Options, where flooding extends out across the floodplain for approximately 500 m from the river.

The river flood zones are shown in **Figure 11.6: EA Flood Map Rivers and Sea**.

11.3.4.2 SURFACE WATER

The EA surface water map[290] shows that the Study Area is at risk of surface water flooding. The risk of flooding varies between high chance (more than a 3.3% chance each year), medium chance (between 1% to 3.3% chance each year), and low chance (between 0.1% to 1% chance each year). In more cases

[288] EA (2025) *Source Protection Zones [Merged].* Available online at: https://www.data.gov.uk/dataset/09889a48-0439-4bbe-8f2a-87bba26fbbf5/source-protection-zones-merged1
[289] EA (2025) *Flood Map for Planning.* Available online at: https://flood-map-for-planning.service.gov.uk/map?cz=414906.5,434895.7,8.44
[290] EA. Surface water map. Available online at: https://check-long-term-flood-risk.service.gov.uk/map#

the flood extents correlate with ordinary watercourses and surface waterbodies. An extensive area of surface water flooding is shown in the centre of the Site around the Black Burn and where multiple tributaries converge.

The risk of flooding from surface water is shown in **Figure 11.7: EA Surface Water Flood Map**.

11.3.4.3 COASTAL

The Study Area is located 30 km from the coast and is not, therefore, at risk of flooding from the sea.

11.3.4.4 RESERVOIRS

The EA reservoir flood maps[291] show there is a risk of flooding in the western Study Area in the event of a breach from either the Linnheads, Catcleugh, or Kielder reservoirs under both wet day and dry day scenarios. These flood extents are shown on **Figure 11.8: EA Reservoir Flood Map.** The flood extents are not shown to encroach the Site and are associated with the Rede Burn, Lisles Burn, and confluence of the Miller Burn, Elsdon Burn, and Rede Burn.

Reservoir flooding is also indicated in the south of the Study Area associated with the River North Tyne and extends approximately 500 m across the floodplain.

11.3.5 DESIGNATED SITES

A review of Natural England maps[292] show there are no Sites of Special Scientific Interest (SSSI), Ramsar sites, Special Protection Areas (SPA), or Special Areas of Conservation (SAC) within the Study Area.

The nearest designated site to the Study Area is the Mill and Whiskershiel Burns SSSI which is located approximately 1.06 km from the northern boundary of the Site. It is not however in direct hydrological connectivity with the Site, as the springs which are the source waters of the burns forming the SSSI are not within the Study Area, and there are no tributaries which originate within the Site and flow into the Mill Burn.

The Redesdale Ironstone Quarries SSSI are located to approximately 870 m to the west of Route Corridor Option 1. A tributary of the Broomhope Burn flows along the south-east margin of the SSSI, but the upstream reaches of the

[291] EA (2025) *Reservoir flood map*. Available online at: https://check-long-term-flood-risk.service.gov.uk/map
[292] MAGIC (n.d.) *Magic Map*. Available online at: https://magic.defra.gov.uk/MagicMap.html

tributary are not within the Route Corridor Option and thus it is not in direct hydrological connectivity with the Study Area.

Approximately 750 m south of the southern end of the Study Area is the Tyne and Allen River Gravels SAC and Wharmley Riverside SSSI. It is located on the right bank of the North River Tyne (the opposite bank to the Study Area). These designated sites are not in direct hydrological connectivity with the Study Area as there are no watercourses which originate from within the Study Area which discharge into the North River Tyne at this location.

Approximately 1.9 km to the south-east of the southern end of the Study Area is the Tyne Watersmeet SSSI which sits on the left bank of the River North Tyne. Approximately 7 km upstream of the SSSI, the River North Tyne flows through the Study Area.

11.4 POTENTIAL IMPACTS AND LIKELY SIGNIFICANT EFFECTS

The following effects on water resources and flood risk have the potential to occur during construction, operation, and decommissioning phases as a result of the Proposed Development and shall be considered in the ES:

- Impacts to surface water quality as a result of chemical pollution from mobilisation of pollutants through surface water runoff and / or from accidental spills and leaks;
- Impacts to surface water quality and watercourse geomorphology as a result of erosion and sedimentation associated with excavations and stockpiling;
- Impacts to surface water quality, quantity, watercourse geomorphology, and flood risk as a result of watercourse crossings for access tracks;
- Impacts to surface water quality, quantity, and watercourse geomorphology as a result of cable crossings for the grid connection;
- Increases in run-off and flood risk due to greater areas of hardstanding and soil compaction, which in turn can increase flood risk and mobilisation of contaminants and sediment into watercourses;
- Flood risk to works during construction and decommissioning;
- Impacts to water resources (private water supplies, public water supplies, abstractions) as a result of changes to water quality and / or quantity and / or direct strikes to supply lines; and
- Impacts to groundwater (quality and quantity) as a result of borrow pit excavation and dewatering activities during construction.

11.5 ASSESSMENT METHODOLOGY

11.5.1 STUDY AREA

The Study Area to be used in the ES will be per this scoping report as set out in **Section 11.1.**

11.5.2 DESK STUDY

An initial desk-based study has been conducted to inform the baseline section of this chapter (**Section 11.3**) using various opensource datasets including OS maps and EA datasets. The baseline conditions will be expanded on in the ES and utilise aerial imagery, digital terrain models, and any additional data collected from consultees such as water resources data.

An FRA will be produced as an appendix to the ES as the Site and Cable Corridor Options fall within Flood Zones 2 and 3. The FRA will assess the risk of flooding to the Proposed Development and potential to increase flood risk elsewhere in relation to the relevant forms of flooding.

A watercourse crossing schedule will be produced as an appendix to the ES which will provide a summary of the proposed and existing watercourse crossings (for both access tracks and cable crossings) that will be utilised as part of the Proposed Development.

Due to the presence of a WFD designated watercourse within the Site (the Hart Burn / Ottercops Burn) and several within the Cable Corridor Options, which will need to be crossed as part of the Proposed Development, it is anticipated a WFD assessment will need to be completed as an appendix to the ES. The WFD assessment will summarise the potential impacts of the Proposed Development in relation to each of the qualifying criteria of the WFD.

11.5.3 FIELD STUDY

A hydrological site survey will be undertaken in the design process. It will be a targeted survey focusing on locations where infrastructure is proposed, where new watercourse crossings are required for access tracks, and where OHL / UGC will cross watercourses. The survey will cover the following:

- ground-truth the baseline desk-top datasets;
- gain an understanding of the local topography and drainage patterns; and
- characterise watercourses at proposed crossing locations.

The results of the site survey will be used to inform the baseline section of the water resources and flood risk chapter and draft the watercourse crossing schedule.

11.5.4 CRITERIA FOR THE ASSESSMENT OF IMPACTS

The assessment methodology for the Water Resources and Flood Risk Chapter of the ES will follow the methodology and approach detailed in **Section 3.4.**

The assessment will be based on technical understanding, professional judgement, and experience on similar schemes. Once the baseline environment has been described and the hydrological receptors of interest identified, the sensitivity of each receptor will be defined. The magnitude of impact will be determined considering the scale, duration, and extent of an impact taking into account the mitigation which will be detailed in the ES. The determination of the significance of effect will be based on combining the receptor sensitivity and the magnitude of impact in line with the matrix approach.

11.5.5 CUMULATIVE EFFECTS

The water resources and flood risk cumulative effects assessment will follow the methodology set out in **Section 3.4.** There is no set guidance for determining hydrological study areas, as such the cumulative hydrological study area for this ES will be based on the hydrological sub-catchments within which the Proposed Development is located, and which will be digitised during the next stages of the ES, up to a maximum radius of 5 km from the Scoping Boundary. Cumulative effects on water resources and flood risk are considered higher when multiple developments are located within the same hydrological catchment and / or are located directly along the same watercourse.

11.6 MITIGATION

During the evolution of the design, the hydrological receptors identified in this chapter have been and will continue to be taken into consideration. The Water Resources and Flood Risk ES Chapter will provide further details on this ‘mitigation by design’ which includes avoidance of flood risk areas, watercourse buffers, and a commitment to implement a construction environmental management plan (CEMP) for the Proposed Development. The ES chapter will provide details of the type of mitigation needed specifically related to water resources and flood risk which will form part of the final CEMP.

11.7 SCOPE OF THE ES CHAPTER

Table 11.2 summarises the proposed scope of the water resources and flood risk chapter which will cover the construction, operation, and decommissioning phases.

TABLE 11.2 ENVIRONMENTAL FACTORS TO BE SCOPED IN OR OUT OF THE ASSESSMENT

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
Surface Water Hydrology	Scoped in	Watercourses within the Site have the potential to be directly impacted by the Proposed Development as a result of changes to water quality and quantity, and effects may be transmitted into the wider Study Area.
Water Framework Directive Assessment	Scoped in	There is one WFD watercourse (Ottercops / Hart Burn) within the Site and several within the Study Area. Some of these watercourses will need to be crossed as part of the Proposed Development which could directly impact them.
Hydrogeology	Scoped in	Dewatering may be required during construction for excavations and borrow pits, and there are impacts associated with trenchless crossing methods for the cables. As such there is the potential for impacts to groundwater quality and quantity.
Water Resources	Scoped in	The full extent of water resources within the Study Area is unknown at this time e.g. if there are any PWS or public water assets. The EA, Northumberland County Council, and Northumbria Water will be contacted as part of the ES to inform the updated baseline. Therefore, water resources are scoped in but the need for further assessment will be based on the results of the data gathering.
Flood Risk Assessment (FRA)	Scoped in	As the Study Area is within Flood Zone 2 and 3, and at risk of surface water flooding, and reservoir flooding, a standalone FRA will be provided alongside the ES with the outcomes of the FRA summarised within the ES chapter.
Designated Sites	Scoped out	There are no designated sites within the Study Area as such these are scoped out of further assessment.

Watercourse Crossing Schedule	Scoped in	A number of watercourse crossings will be needed as part of the Proposed Development for on-site access tracks and cables associated with the grid connection. The watercourse crossing schedule will list the locations and provide baseline characteristics of the watercourses at crossing points.

11.8 CONSULTATION AND SCOPING QUESTIONS

Details of public and private water supplies will be obtained through consultation with:

- Environment Agency;
- Northumberland County Council; and
- Northumbrian Water.

Key questions for consultees are:

- Q11.1 - Are consultees content with the proposed methodology and scope of the assessment of the water resources and flood risk assessment?
- Q11.2 - Do consultees have any information that would be useful in the preparation of the water resources and flood risk assessment?

12. ACCESS, TRAFFIC AND TRANSPORT

12.1 INTRODUCTION

This chapter outlines the baseline environment, potential impacts, and proposed methodology to be undertaken for the access, traffic and transport assessment that will be included within the ES. In addition, this chapter details how proposed mitigation measures will be presented. No formal engagement has been undertaken to date; however, a list of consultation and scoping questions has been collated in this chapter for future formal engagement.

Vehicle movements to the Proposed Development will consist of abnormal load vehicles (ALVs), heavy goods vehicles (HGVs), light goods vehicles (LGVs) and cars. The likely significant effects of the construction, operation and decommissioning phase of the Proposed Development on the surrounding transport network are detailed.

This chapter should be read in conjunction with the description of the Proposed Development presented in **Chapter 2: The Proposed Development** and **Figure 2.1: Site Location**.

12.2 LEGISLATION, POLICY AND GUIDANCE

12.2.1 LEGISLATION AND REGULATION

There are several key legislative and regulatory frameworks that inform the consideration of traffic and transport impacts associated with the Proposed Development. These include, but are not limited to:

- Highways Act 1980[293];
- Road Traffic Regulation Act 1984[294];
- Road Vehicles (Construction and Use) Regulations 1986;
- New Roads and Street Works Act 1991[295] (NRSWA);
- Traffic Management Act 2004[296];

[293] HM Government (1980). Highways Act 1980. Available online at: https://www.legislation.gov.uk/ukpga/1980/66
[294] HM Government (1984). Road Traffic Regulation Act 1984. Available online at: https://www.legislation.gov.uk/ukpga/1984/27/contents
[295] HM Government (1991). New Roads and Streets Act 1991. Available online at: https://www.legislation.gov.uk/ukpga/1991/22/contents
[296] HM Government (2004). Traffic Management Act 2004. Available online at: https://www.legislation.gov.uk/ukpga/2004/18/introduction

- Construction (Design and Management) Regulations 2015 (CDM)[297];
- Traffic Signs Regulations and General Directions 2016, and associated Traffic Signs Manuals[298]; and
- Design Manual for Roads and Bridges (DMRB), particularly standards CD109[299] and CD123[300].

12.2.2 NATIONAL PLANNING POLICY

12.2.2.1 NATIONAL POLICY STATEMENTS

The energy National Policy Statements (NPSs), EN-1 – EN-6, outline the government's policy for delivering major energy infrastructure. The NPSs that are of relevance to the Proposed Development are:

- Overarching National Policy Statement for Energy (EN-1)[301] (2025);
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (2025)[302]; and
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (2025)[303].

[297] Health and Safety Executive 2015, The Construction (Design and Management) Regulations 2015 Available online at: https://www.hse.gov.uk/construction/cdm/2015/index.htm
[298] HM Government (2016). The Traffic Signs Regulations and General Directions 2016. Available online at: https://www.legislation.gov.uk/uksi/2016/362/contents
[299] Standard for Highways (2020). CD 109 – Highway Link Design Available online at: https://www.standardsforhighways.co.uk/tses/attachments/by-attachment-id/0c19eb56-5ba4-485a-8860-12bc9fa3b67f?inline=true.
[300] Standard for Highways (2021). CD 123 - Geometric design of at-grade priority and signal-controlled junctions (Online) Available at: https://www.standardsforhighways.co.uk/search/html/962a81c1-abda-4424-96c9-fe4c2287308c?standard=DMRB.
[301] Department for Energy Security and Net Zero (DESNZ), 2023. Overarching National Policy Statement for Energy (EN-1). [Online] Available at: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1.
[302] DESNZ, 2023, National Policy Statement for Renewable Energy Infrastructure (EN-3). Available online at: https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3.
[303] DESNZ, 2023, National Policy Statement for electricity networks infrastructure (EN-5). Available online at: https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5-2025

Details of specific policies within EN-1 and EN-3 that are considered relevant to Traffic and Transport are set out in **Table 12.1**. EN-5 contains no additional requirements with regard to transport and traffic.

TABLE 12.1 NATIONAL PLANNING POLICY STATEMENTS

NPS Reference	NPS Requirement
EN-1, paragraph *5.14.1*	*"The transport of materials, goods, and personnel to and from a development during all project phases can have a variety of impacts on the surrounding transport infrastructure and potentially on connecting transport networks, for example through increased congestion. Impacts may include economic, social, and environmental effects."*
EN-1, paragraph 5.14.4	*"The consideration and mitigation of transport impacts is an essential part of Government's wider policy objectives for sustainable development as set out in Section 2.5 of this NPS.*
EN-1, paragraph 5.14.5	*"If a project is likely to have significant transport implications, the applicant's ES should include a vision for transport and an assessment of potential transport impacts."*
EN-1, paragraph 5.14.7	*National Highways and Highways Authorities are statutory consultees on NSIP applications including energy infrastructure where it is expected to affect the strategic road network and / or have an impact on the local road network. Applicants should consult with National Highways and Highways Authorities as appropriate on the assessment, including any reasonable future tested scenarios and mitigation to inform the application to be submitted."*

NPS Reference	NPS Requirement
EN1, paragraph 5.14.8	*"The applicant should prepare a travel plan adopting a vision-led approach to identify demand management and monitoring and fallback measures that proactively mitigate transport impacts by providing details of proposed measures to improve access by active, public and shared transport to:* • *reduce the need for parking associated with the proposal;* • *contribute to decarbonisation of the transport network;* • *improve user travel options by offering genuine modal choice."*
*E*N1, paragraph 5.14.10	*"If additional transport infrastructure is needed or proposed, it should always include good quality walking, wheeling and cycle routes, and associated facilities (changing/storage etc.) needed to enhance active transport provision."*
EN1, paragraph 5.14.11	*"Applicants should discuss with network providers the possibility of co-funding by government for any third-party benefits. Guidance has been issued which explains the circumstances where this may be possible, although the government cannot guarantee in advance that funding will be available for any given uncommitted scheme at any specified time".*
EN1, paragraph 5.14.12	*"Where mitigation is needed, possible demand management measures must be considered. This could include identifying opportunities to:* • *reduce the need to travel by consolidating trips,*

NPS Reference	NPS Requirement
	• *locate development in areas already accessible by active travel and public transport,* • *provide opportunities for shared mobility,* • *re-mode by shifting travel to a sustainable mode that is more beneficial to the network,* • *retime travel outside of the known peak times,* • *reroute to use parts of the network that are less busy."*
EN1, paragraph 5.14.14	*"Regard should always be given to the needs of freight at all stages in the construction and operation of the development including the need to provide appropriate facilities for HGV drivers as appropriate."*
EN1, paragraph 5.14.15	*"The Secretary of State may attach requirements to a consent where there is likely to be substantial HGV traffic that:* • *control numbers of HGV movements to and from the site in a specified period during its construction and possibly on the routing of such movements* • *make sufficient provision for HGV parking and associated high quality drive facilities either on the site or at dedicated facilities elsewhere, to support driver welfare, avoid 'overspill' parking on public roads, prolonged queuing on approach roads and uncontrolled on-street HGV parking in normal operating conditions.* • *ensure satisfactory arrangements for reasonably foreseeable abnormal disruption, in consultation with network providers and the responsible police force."*

NPS Reference	NPS Requirement
EN-3 paragraph 2.12.110	*"Applicants should ensure all sections of roads and bridges on the proposed delivery route can accommodate the weight, size and volume of the loads and width of vehicles. Where modifications to roads and/or bridges are required, these should be identified, and potential effects assessed and reported in the ES."*
EN-3 paragraph 2.12.113	*Where a cumulative impact is likely because multiple developments are proposing to use a common port and/or access route and pass through the same towns and villages, applicants should include a vision-led transport assessment to manage the cumulative impacts as part of the ES. This should consider the impacts of abnormal traffic movements relating to the project in question in combination with those from any other relevant development. Applicants should consult with the relevant local highways authorities.*

12.2.2.2 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

The following NPPF paragraphs are relevant to traffic and transport.

Paragraph 109 states:

> *"Transport issues should be considered from the earliest stages of plan-making and development proposals, using a vision-led approach to identify transport solutions that deliver well-designed, sustainable and popular places."*

Paragraph 114 states:

> *"Planning policies and decisions should recognise the importance of providing adequate overnight lorry parking facilities, taking into account any local shortages, to reduce the risk of parking in locations that lack proper facilities or could cause a nuisance. Proposals for new or expanded distribution centres should make provision for sufficient lorry parking to cater for their anticipated use."*

Paragraph 116 states:

> *"Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe."*

Paragraph 118 states:

> *"All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed."*

12.2.3 LOCAL PLANNING POLICY

Local planning policy relevant to traffic and transport will be identified and drawn from the following:

- Northumberland Local Plan 2016 - 2036; and
- Northumberland Local Transport Plan (2011 - 2026)[304]

There are no specific relevant policies in the Northumberland National Park Local Plan (2020).

12.2.4 GUIDANCE

- Planning Practice Guidance on Travel Plans, Transport Assessment and Statements (2014)[305];
- The Institute of Sustainability and Environmental Professionals (ISEP) (formerly the Institute of Environmental Management and Assessment (IEMA)), Guidelines for the Environmental Assessment of Traffic and Movement (2023)[306];

[304] Northumberland Local Transport Plan Available online at: https://www.northumberland.gov.uk/public-transport/public-transport-improvements/transport-plans/local-transport-plan

[305] UK Government (2014). Planning Practice Guidance on Travel Plans, Transport Assessment and Statements. Available online at: https://www.gov.uk/guidance/travel-plans-transport-assessments-and-statements

[306] Institute of Environmental Management and Assessment (2023) *Guidelines for the Environmental Assessment of Road Traffic and Movement.* Available online at: https://www.thenbs.com/PublicationIndex/documents/details?Pub=IEA&DocID=257892

- Department for Transport (DfT) Circular 01/2022: The Strategic Road Network and the Delivery of Sustainable Development[307];

A review of transport specific policy and guidance will be assessed in the Access, Traffic and Transport chapter of the ES to inform the wider traffic and transport assessment.

12.3 BASELINE CONDITIONS AND KEY SENSITIVITIES

12.3.1 DATA SOURCES

The following data sources have been used to inform this chapter and will be used to inform the assessment in the ES:

- OS and mapping data from Google Earth;
- The Department for Transport Traffic Counts Website[308];
- Northumberland County Council Public Rights of Way map[309];
- Walk Wheel Cycle Trust[310], the custodian for the National Cycle Network; and
- Surveys undertaken as applicable.

12.3.2 DESCRIPTION OF BASELINE CONDITIONS

12.3.2.1 STUDY AREA

The Study Area has been defined by the public road network in the vicinity of the Proposed Development that are expected to experience increased traffic flows associated with the construction of the Proposed Development. The current geographic scope has been determined through a review of the other developments in the area, OS plans and an assessment of the potential origin locations of construction staff and supply locations for construction materials.

[307] Department for Transport (2022). Strategic Road Network and the Delivery of Sustainable Development. Available online at: https://www.gov.uk/government/publications/strategic-road-network-and-the-delivery-of-sustainable-development

[308] Dft (2023). Road Traffic Statistics. Available online at: https://roadtraffic.dft.gov.uk/#6/55.254/-6.053/basemap-regions-countpoints.

[309] Northumberland County Council, Public Rights of Way map. Available online at: https://www.northumberland.gov.uk/about-council/digital-maps/public-rights-way-northumberland

[310] Walk Wheel Cycle Trust Website. Available online at: https://www.walkwheelcycletrust.org.uk/find-a-route-on-the-national-cycle-network/drakes-trail/?gad_source=1&gad_campaignid=1371083005&gclid=Cj0KCQjw37nNBhDkARIsAEBGI8Pjlmyx8mqAwhkvDf4qwoX7UeM4f6hT3JT3j0aZyOFZCsY0xsCGZ7caArzWEALw_wcB

The A1, A68, A696, B6342 B6320, B6318, B6319 and several C class roads are all anticipated to be included in the Study Area. However, the extent of the Study Area will be developed in consultation with Northumberland County Council and National Highways as appropriate and further details will be provided in the ES.

12.3.2.2 GENERAL SETTING AND ACCESS

The Site is located approximately 1.2 km northeast of West Woodburn, 3 km south of Elsdon and 3.2 km northwest of Kirkwhelpington. Access to the wider strategic road network is mainly available via the A696 with a good access to the A1 trunk road.

The A696 bisects the Site into two land parcels. Access to the western parcel is proposed via an existing priority junction on the A696, north of the of the operational Ray Wind Farm access junction.

Two new access junctions are proposed from the A696 to serve the eastern parcel of the Site. All new access junctions will be designed to provide appropriate visibility splays and, where required to accommodate abnormal load movements, will be developed in accordance with abnormal load geometric design standards. Any modifications or upgrades to junctions connecting to the public highway will be undertaken in accordance with the Northumberland highway development requirements.

In terms of the Cable Corridor Options, at this stage, the detailed access strategy has not yet been defined, as the final cable corridor and construction compound locations remain subject to ongoing design development. Access to the works area of the corridor is anticipated to be taken from the existing local highway network via a series of temporary construction access points, the locations of which will be confirmed as the design progresses.

It is assumed that the proposed port of entry for turbine components will be from the Port of Blyth, then proceeding southwest bound towards the proposed access junctions off the A696 via the A1. The route to site for general construction traffic is not currently known, however it is anticipated that all construction traffic is likely to include the roads listed in **Section 12.3.2.1** above and further details will be provided in the ES.

12.3.2.3 NON-MOTORISED USER NETWORK

As illustrated on **Figure 15.2: Public Right of Way**, there are a number of Public Rights of Way (PRoW) which either cross or pass close to the Scoping Boundary of the Proposed Development. It is acknowledged that the presence

of construction plant and equipment in works areas adjacent to the PRoWs during the construction phase may temporarily reduce the amenity value of the paths. However, it is anticipated that these effects would be temporary and short-term. It is not anticipated that any of these routes will require permanent closure because of the construction, operation, or decommissioning of the Proposed Development. However, some temporary diversions and user management may be required in order to ensure the safe and uninterrupted usage of these routes throughout construction. Further details regarding PRoWs relevant to traffic and transport will be set out in detail in the ES.

A review of the Walk Wheel Cycle Trust's National Cycle Network (NCN) indicates that a short section of the NCN Route 10 passes through the Cable Corridor Options near Great Bavington. There are no NCN routes within the Site with the closest being NCN 68 which routes to the southwestern edge of the Site. As noted above, the sections of road network likely to be included in the Study Area have no footway provision and are generally unlit.

Further details on baseline conditions will be set out in detail in the ES.

12.3.2.4 KEY SENSITIVITIES

The following sensitive receptors have been identified and will be considered within the ES:

- Motorised users of the surrounding highway network, including vehicle drivers and public transport users;
- Non-motorised users of the surrounding highway network, core path networks and non-designated public routes, including pedestrians, cyclists, and vulnerable groups; and
- Residents (and amenities) within the settlements (including Otterburn, Ponteland) along the roads likely to be impacted by traffic associated with the Proposed Development.

12.4 POTENTIAL IMPACTS AND LIKELY SIGNIFICANT EFFECTS

12.4.1 EFFECTS SCOPED IN

In accordance with the ISEP 2023[311] Guidelines, the following effects on access, traffic and transport receptors have the potential to result from the

[311] IEMA (July 2023) Environmental Assessment of Traffic and Movement. Available online at: iema-report-environmental-assessment-of-traffic-and-movement-rev07-july-2023.pdf.

Proposed Development and shall be considered in the undertaking of further assessment for the construction and decommissioning phase:

- Severance of communities;
- Road Vehicle and Passenger Delay;
- Non-motorised Delay;
- Non-motorised Amenity;
- Fear and intimidation on and by Road Users;
- Road user and Pedestrian Safety; and
- Hazardous and Large Loads (Abnormal Loads).

The ISEP 2023 Guidelines also necessitate the consideration of traffic related noise and vibration and visual impact effects; the need to assess the impact of traffic on these effects is addressed within **Chapter 6: Landscape and Visual** and **Chapter 13: Noise and Vibration** respectively of the Scoping Report.

12.4.2 EFFECTS SCOPED OUT

12.4.2.1 OPERATIONAL TRAFFIC

Traffic associated with the operation of the Proposed Development and associated grid connection is limited to general maintenance and Site monitoring visits which will likely be undertaken by car and LGVs and can be expected to be in the region of one visit per day on average.

This level of traffic associated with this phase is expected to be minimal and negligible in terms of existing traffic flow levels on routes within the vicinity of the Proposed Development and will be insufficient to trigger the threshold for assessment as set out in the ISEP 2023 Guidelines and therefore the assessment of operational traffic impacts is proposed to be scoped out of the Access, Traffic and Transport ES chapter.

12.4.2.2 AIR QUALITY

Please refer to **Chapter 16: Other Issues** relating to Air Quality, where this topic is addressed, including justification of scope and rationale for assessment (or scoping out, as applicable).

12.5 ASSESSMENT METHODOLOGY

12.5.1 BASELINE SURVEY METHODOLOGY

The main data considered fundamental to the assessment of traffic and transport effects will be traffic flow data and Road Traffic Collision (RTC) accident data. RTC data will be obtained for the most recent five-year period

which will provide information on each collision including severity as well as factors which attributed the collision.

With respect to traffic flow data, baseline traffic data will be obtained through independent Automatic Traffic Counts (ATC) surveys of the road network within the Study Area and augmented with data from publicly available data sources where possible. If required, additional surveys in the form of Non-Motorised User (NMU) counts will be undertaken to provide a snapshot of the usage of the NMU network with the Study Area.

The timings and locations of the surveys will be discussed with Northumberland County Council, however the locations selected will provide a basis for the analysis and incorporate local routes within the corridor close to potential sensitive receptors and routes along key strategic links to provide a robust baseline for assessment.

The traffic flow data collected will be used to assess the predicted impact on traffic flows resulting from the proposed traffic associated with the Proposed Development. Further detail will be provided in the ES.

12.5.2 CRITERIA FOR THE ASSESSMENT OF EFFECTS

The assessment would be undertaken in accordance with the ISEP 2023 Guidelines. The guidance notes two rules to be used as a screening process to identify the appropriate extent of the assessment area and the likelihood of significant environmental effects occurring. These are:

- Rule 1 - Road links where traffic flows will increase by more than 30 % as result of the Proposed Development (or where the number of heavy goods vehicles is predicted to increase by more than 30 %) must be assessed; and,
- Rule 2 - Road links of high sensitivity where traffic flows have increased by 10 % or more.

Any change in traffic flow which is greater than the thresholds outlined above would be subject to further detailed assessment. It is acknowledged that in areas where traffic flow is lower than the ISEP Guidelines thresholds, the significance of the effects can be considered low or not significant with no further detailed assessments warranted.

The ISEP (2023) Guidelines note that the application of the Rule 1 and Rule 2 criteria is not appropriate for certain impact types. It is widely accepted by regulators and practitioners that these criteria should not be applied to the assessment of road user and pedestrian safety, nor to road vehicle driver and

passenger delay. These effects may be potentially significant at lower levels of traffic change where baseline traffic flows are already high. Guideline criteria for assessing the significance of effects are provided in **Table 12.4** of this chapter.

The process for determining significance where Rules 1 or 2 are triggered is undertaken on a site-specific basis and the framework for determining the magnitude of change in traffic flow as well as the methodology for assessing the significance of an effect and the sensitivity of receptors is described in detail in the sections below.

Where existing traffic levels are generally low (e.g., rural roads and some unclassified roads), any increase in traffic flow may result in a predicted increase that would be higher than the ISEP (2023) guideline thresholds. In these situations, it is important to consider any increase in terms of overall traffic flow in relation to the capacity of the road, before making a conclusion on whether the effect is significant.

12.5.2.1 SENSITIVITY RECEPTORS

The sensitivity of the baseline conditions, including the importance of environmental features on or near to the Site or the sensitivity of potentially affected receptors, will be assessed in line with good practice guidance, legislation, statutory designations and / or professional judgement. **Table 12.2** outlines the framework for determining the sensitivity of receptors.

TABLE 12.2 FRAMEWORK FOR DETERMINING SENSITIVITY OF RECEPTOR

Receptor Sensitivity	Description
Very High	The receptor has no ability to absorb change without profoundly altering its present character, is of high strategic value, or of national importance, would include receptors such as populated areas where existing traffic levels are high and there is no capacity to absorb additional traffic flow on adjacent routes; and strategic nationally important routes with no capacity to absorb additional traffic flow.
High	The receptor has little ability to absorb change without fundamentally altering its present character, is of high strategic value, or of national importance. These would include receptors such as populated areas where existing traffic levels are high and there is little capacity to absorb additional traffic flows on adjacent routes. Accident hotspots would also be considered, as well as locations where pedestrian crossing facilities are informal, where a significant

Receptor Sensitivity	Description
	change in traffic flow level might induce significant pedestrian crossing delay, and where children/elderly people might regularly cross an informal or priority crossing.
Medium	Areas where the transport network has moderate capacity to change, without significantly altering its state. These would include routes with existing moderate traffic levels which have some additional traffic flow capacity, receptors such as populated areas where existing traffic levels are moderate and there is some capacity to absorb additional traffic flow on adjacent routes, slight accident hotspots where an increase in traffic flow may increase the likelihood or severity of accidents, locations where pedestrian crossing facilities are informal or substandard, and where a significant change in traffic flow level might induce a moderate pedestrian crossing delay.
Low	Areas where the transport network is tolerant to change without detriment to its state. These would include routes with existing low traffic levels which have additional traffic flow capacity, areas such as trunk road or A class roads constructed to accommodate significant HGV volumes, receptors such as populated areas where existing traffic levels are low and there is capacity to absorb additional traffic flow on adjacent routes, routes with a low level of historical accident data where a change in traffic flow or composition would have a low effect on the likelihood or severity of accidents, and locations where pedestrian crossing facilities are formal but priority, or pedestrian flows are sufficiently low that changes to traffic flow or composition are unlikely to cause a significant pedestrian delay.
Negligible	Areas where the transport network is tolerant to change without detriment to its state. These would include routes with existing low traffic levels which have a lot of additional traffic flow capacity, areas such as trunk road or A class roads constructed to accommodate significant HGV volumes, receptors such as populated areas where existing traffic levels are very low and there is capacity to absorb additional traffic flow on adjacent routes, routes with a very low level of historical accident data where a change in traffic flow or composition would have a negligible effect on the likelihood or severity of accidents, and locations where pedestrian crossing facilities are formal and controlled, or pedestrian flows are negligible (i.e. where there are no footways) such that changes to traffic flow or composition would not result in a change to pedestrian delay. This would also refer to

Receptor Sensitivity	Description
	receptors that are sufficiently distant from the affected roads and junctions.

12.5.2.2 MAGNITUDE OF IMPACT

The magnitude of impact will be determined through a structured professional judgement process, informed by the ISEP (2023) Guidelines, which considers:

- Baseline traffic conditions (absolute flows and sensitivity of the receiving network);
- Scale of change (percentage and absolute change in traffic flows attributable to the Proposed Development);
- Duration of the effect (temporary or permanent);
- Reversibility of the effect; and
- Nature of the impact pathway (e.g. congestion, delay, safety exposure).

Consistent with ISEP (2023), magnitude is not derived from a single threshold but from a balanced consideration of these factors in combination, with particular weight given to baseline conditions where networks are already operating close to capacity.

The criteria for assessing the magnitude of change on receptors is presented in **Table 12.3**:

TABLE 12.3 FRAMEWORK FOR DETERMINING THE MAGNITUDE OF CHANGE

Type of Impact	Magnitude of Change			
	Negligible	**Small**	**Medium**	**Large**
Severance of Communities	Change in total traffic flow of <30%	Change in total traffic flow of 31% to 60%	Change in total traffic flow of 61% to 90%	Change in total traffic flow of >91%
Non-Motorised User Amenity	Change in traffic flow (or HGV component) <50%	Change in traffic flow (or HGV component) of 51% to 100%	Change in traffic flow (or HGV component) of 101% to 150%	Change in traffic flow (or HGV component) of >151%

Type of Impact	Magnitude of Change			
	Negligible	**Small**	**Medium**	**Large**
Non-Motorised User Delay	Change in total traffic flow of <30%	Change in total traffic flow of 31% to 60%	Change in total traffic flow of 61% to 90%	Change in total traffic flow of >90%
Fear and Intimidation	No change in step changes	One step change in level, with <400 vehicles increase in average 18hr AV two-way all vehicle flow; and/or <500 HGV increase in total 18hr HGV flow	One step change in level, but with >400 vehicles increase in average 18hr AV two-way all vehicle flow; and/or >500 HGV increase in total 18hr HGV flow.	Two step changes in level
Road User and Pedestrian Safety	Magnitude of impact derived using professional judgment informed by the frequency and severity of collisions within the Study Area and the forecast increase in traffic.			
Road Vehicle Driver and Passenger Delay	Magnitude of impact derived in in conjunction with a Transport Assessment/Statement, consultation with the highway authority and professional judgment informed by the increase in vehicle delay and whether a junction or highway link is at, or close to capacity, particularly on the weekday peak hour periods when baseline traffic flows are at their highest.			
Abnormal Loads	Defined by an assessment of the suitability of the access routes to accommodate abnormal load vehicles.			

12.5.2.3 SIGNIFICANCE OF EFFECTS

Table 12.4 presents guideline criteria for assessing the significance of effects. The sensitivity of the receptor and the magnitude of impact will be used as a guide, in addition to professional judgement, to predict the significance of the

likely effects as shown in **Table 12.4.** Moderate and Major effects are considered to be Significant.

TABLE 12.4 SIGNIFICANCE OF EFFECT MATRIX FOR TRAFFIC AND TRANSPORT

Impact Magnitude	Sensitivity of Receptors				
	Very High	High	Medium	Low	Negligible
Large	Major	Major	Moderate	Moderate	Minor
Medium	Major	Moderate	Moderate	Minor	Negligible
Small	Moderate	Moderate	Minor	Negligible	Negligible
Negligible	Minor	Minor	Negligible	Negligible	Negligible

12.5.3 ABNORMAL LOAD ROUTE ASSESSMENT

An Abnormal Load Route Assessment (ALRA) will be undertaken to confirm that the proposed route(s) can accommodate the AILs and that their transportation will not have any detrimental effect on the proposed haulage route and will identify any additional off-Site improvement works which are required to make the route viable.

12.5.4 TRANSPORT ASSESSMENT

A Transport Assessment (TA) will be prepared to support the EIA process. The TA and the EIA would utilise the same baseline data, however, the TA will be prepared in accordance with its own relevant guidance and good practice and will be subject to a consultation exercise with Northumberland County Council and National Highways. It will focus on the ability of the surrounding highway network to accommodate traffic associated with the Proposed Development.

12.5.5 CUMULATIVE EFFECTS

As outlined in **Section 12.4**, this chapter will consider the potential for significant cumulative effects arising in combination with other consented and/or proposed traffic-generating developments that utilise similar construction traffic routes and affect the same transport receptors. Consultation will be undertaken with relevant authorities to establish where significant cumulative effects may occur, and with which developments.

In addition to the above, the in-combination traffic and transport impacts arising from overlapping construction activities (Site and Cable Corridor Options) will be assessed as relevant.

12.6 MITIGATION

The Access, Traffic and Transport ES chapter will provide details of embedded mitigation such as routing of construction vehicles, access arrangements to the Proposed Development, details of the vehicle holding area(s), measures to reduce, wherever practicable, the use of public roads during morning and evening peak hours, details for the use of any traffic lights on public roads for safety, details for any temporary traffic management and warning signs where appropriate in the form of an outline Construction Traffic Management Plan (oCTMP). Secondary mitigation may be included should the assessment reveal criteria that there are likely significant effects following the application of embedded mitigation measures.

Any new access arrangements will be designed in accordance with the appropriate guidance with consideration given to the road safety of other road users.

12.7 SCOPE OF THE ES CHAPTER

Table 12.5 contains a list of all receptors and species relating to access, traffic and transport that will be scoped in or out of the assessment.

TABLE 12.5 ENVIRONMENTAL FACTORS TO BE SCOPED IN OR OUT OF THE ASSESSMENT

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
Severance of Communities during Construction	Scoped in	In line with the ISEP 2023 Guidelines[312], traffic movements associated with the construction of the Proposed Development have the potential to result in this effect and as such will be scoped in for the assessment.
Road Vehicle Driver and Passenger Delay during construction	Scoped in	In line with the ISEP 2023 Guidelines traffic movements associated with the construction of the Proposed Development have the potential to result in this effect and as such will be scoped in for the assessment.
Non-motorised User Delay during construction	Scoped in	In line with the ISEP 2023 Guidelines, traffic movements associated with the construction of the Proposed Development have the potential to result in this effect and as such will be scoped in for the assessment.
Non-motorised Amenity during construction	Scoped in	In line with ISEP Guidelines, traffic movements associated with the construction of the Proposed Development have the potential to result in this effect and as such will be scoped in for the assessment.

[312] Institute of Environmental Management and Assessment (2023) *Guidelines for the Environmental Assessment of Road Traffic and Movement.* Available online at: https://www.thenbs.com/PublicationIndex/documents/details?Pub=IEA&DocID=257892

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
Fear and Intimidation on and by Road Users during construction	Scoped in	In line with the ISEP 2023 Guidelines, traffic movements associated with the construction of the Proposed Development have the potential to result in this effect and as such will be scoped in for the assessment.
Road User and Pedestrian Safety during construction	Scoped in	In line with the ISEP 2023 Guidelines, traffic movements associated with the construction of the Proposed Development have the potential to result in this effect and as such will be scoped in for the assessment.
Hazardous and Large Loads during construction	Scoped in	In line with the ISEP 2023 Guidelines, traffic movements associated with the construction of the Proposed Development have the potential to result in this effect and as such will be scoped in for the assessment.
Transport Assessment	Scoped in	At the time of producing this scoping report, a TA to accompany the planning application for the Proposed Development. The TA will provide a more detailed assessment of trip generation and distribution and the ability of the surrounding highway network to accommodate increased traffic volumes.
Operational Traffic	Scoped out	Traffic associated with the operation of the Proposed Development is limited to maintenance and is expected to be insignificant in comparison to traffic generated during construction. General maintenance and Site monitoring visits will be undertaken by car

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
		and LGVs and can be expected to be in the region of one visit per week on average, although there may be an occasional need for an HGV delivery (and other larger size vehicles) to the Site during the operational phase to replace any of the components if required This level of traffic associated with this phase will be insufficient to trigger the threshold for assessment as set out in the ISEP 2023 Guidelines and is expected to be minimal and negligible in terms of existing traffic flow levels on routes within the vicinity of the Proposed Development. Therefore. the assessment of operational impacts is proposed to be scoped out of the Access, Traffic and Transport ES chapter.
Decommissioning Effects	Scoped in	Traffic associated with decommissioning of the Proposed Development will be the same or less than that experienced during construction. On this basis, the Transport Chapter will include a proportionate assessment of decommissioning traffic effects using a reasonable maximum design scenario, informed by: • Anticipated decommissioning activities and programme duration; • Indicative HGV and abnormal load movements compared against the construction phase; • Likely re-use of the construction access strategy and agreed delivery routes; and • Interaction with a future baseline transport network, assessed at a high level.

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
Air Quality	Scoped out	Please refer to **Chapter 16: Other Issues** relating to Air Quality, where this topic is addressed, including justification of scope and rationale for assessment (or scoping out, as applicable).

12.8 CONSULTATION AND SCOPING QUESTIONS

Consultation will be conducted with the following consultees:

- Northumberland County Council; and
- National Highways.

Key questions for consultees are:

- Q12.1 - Are consultees content with the proposed methodology and scope of the traffic and transport assessment?
- Q12.2 - Are the council / statutory consultees aware of any specific access restrictions or limitations on the delivery of abnormal indivisible loads to Site?
- Q12.3 - Are consultees content to scope out operational and decommissioning traffic from further assessment?

  Q12.4 - Are you aware of any relevant policies or guidance documents not specifically mentioned in this chapter of the Report?

13. NOISE AND VIBRATION

13.1 INTRODUCTION

This chapter sets out the proposed approach to the assessment of potential impacts and likely significant effects of noise and vibration from the Proposed Development on nearby sensitive receptors. Any noise and vibration effects on ecological receptors are discussed in **Chapter 9: Ecology and Nature Conservation**.

During the construction phase, noise and vibration effects could arise from both on-Site activities, such as the construction of access tracks, turbine foundations, the ancillary plant and buildings (substation etc.), as well as from the movement of construction related traffic both on-Site and travelling on public roads to and from the Proposed Development.

During their operation, wind turbines have the potential to create noise effects through both aerodynamic noise and mechanical noise. Aerodynamic noise would be caused by the interaction of the turbine blades with the air. Mechanically generated noise would be caused by the operation of internal components such as the gearbox and generator, which are housed within the nacelle of the turbine. However, the level of mechanical noise radiated from current technology wind turbines is generally engineered to a low level.

The operation of the BESS and associated infrastructure will generate industrial noise due to their cooling systems, which may include multiple axial or centrifugal fans, condensers, pumps and air handling units. The electrical components including inverters, transformers, onsite substation and cabling may generate an electrical hum and corona discharge noise.

Northumberland County Council have been consulted on the proposed noise assessment study areas, noise-sensitive receptors and survey methodology.

This chapter is supported by the following figures and should be read in conjunction with the description of the Proposed Development presented in **Chapter 2: Project Description**.

- Figure 13.1: Noise Sensitive Receptors; and
- Figure 13.2: Cumulative Assessment.

13.2 LEGISLATION POLICY AND GUIDANCE

This section outlines the noise legislation and guidance relevant to the Proposed Development.

13.2.1 LEGISLATION

- **The Control of Pollution Act 1974[313] (CoPA)**

  The CoPA provides the definition of Best Practicable Means (BPM) to minimise construction noise (including vibration), the basis for defence against noise abatement action taken by a local authority under Section 60. The CoPA also requires persons responsible to seek prior consent from the local authority for works on construction sites (Section 61) including undertaking BPM steps to minimise noise, and provides the basis for defining codes of practice (applies to BS 5228:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites, Part 1: Noise and Part 2: Vibration').

- **The Environmental Protection Act 1990[314] (EPA)**

  The EPA sets out the duty for local authorities to investigate and, where identified, take abatement action against noise nuisance. The EPA provides the definition of BPM to minimise noise (including vibration), the basis for a defence against noise abatement action taken by a local authority under Section 80. The EPA also provides for individuals to seek for abatement action to be taken by a magistrates' court against noise nuisance (Section 82).

13.2.2 NATIONAL PLANNING POLICY

13.2.2.1 NATIONAL POLICY STATEMENTS

The energy National Policy Statements (NPSs), EN-1 – EN-6, outline the government's policy for delivering major energy infrastructure. The NPSs that are of relevance to the Proposed Development are:

- Overarching National Policy Statement for Energy (EN-1)[315] (2025);
- National Policy Statement for Renewable Energy Infrastructure (EN-3)[316] (2025); and

[313] UK Government (1974). Control of Pollution Act 1974. Available online at: https://www.legislation.gov.uk/ukpga/1974/40/contents
[314] UK Government (1990). Environmental Protection Act 1990. Online. Available online at: https://www.legislation.gov.uk/ukpga/1990/43/contents
[315] UK Government (2025) *Overarching National Policy Statement for Energy (EN-1)* (NPS EN-1)
[316] UK Government (2025) *National Policy Statement for Renewable Energy Infrastructure (EN-3)* (NPS EN-3)

- National Policy Statement for Electricity Networks Infrastructure (EN-5) (2025)[317];
- Details of specific policies within EN-1, EN-3 and EN-5 that are considered relevant to noise are set out in **Table 13.1**.

TABLE 13.1 NATIONAL PLANNING POLICY STATEMENTS

NPS Reference	NPS Requirement
EN-1, paragraph 5.12.4	*EN-1, paragraph 5.12.4 states: "Noise resulting from a proposed development can also have adverse impacts on wildlife and biodiversity. Noise effects of the proposed development on ecological receptors should be assessed by the Secretary of State in accordance with the Biodiversity and Geological Conservation section of this NPS at Section 5.4. "*
EN-1, paragraph 5.12.6	*"Where noise impacts are likely to arise from the proposed development, the applicant should include the following in the noise assessment:* *• a description of the noise generating aspects of the development proposal leading to noise impacts, including the identification of any distinctive tonal characteristics, if the noise is impulsive, whether the noise contains particular high or low frequency content or any temporal characteristics of the noise;* • *identification of noise sensitive receptors and noise sensitive areas that may be affected;* • *the characteristics of the existing noise environment;* • *a prediction of how the noise environment will change with the proposed development:*

[317] UK Government (2025) *National Policy Statement for Electricity Networks Infrastructure (EN-5)* (NPS EN-5)

NPS Reference	NPS Requirement
	◦ *in the shorter term, such as during the construction period;* ◦ *in the longer term, during the operating life of the infrastructure;* ◦ *at particular times of the day, evening and night (and weekends) as* *appropriate, and at different times of year.* • *an assessment of the effect of predicted changes in the noise environment on any noise-sensitive receptors, including an assessment of any likely impact on health and quality of life / wellbeing where appropriate, particularly among those disadvantaged by other factors who are often disproportionately affected by noise-sensitive areas;* • *if likely to cause disturbance, an assessment of the effect of underwater or subterranean noise; and* • *all reasonable steps taken to mitigate and minimise potential adverse effects on health and quality of life."*
EN-1, paragraph 5.12.8	*"Applicants should consider the noise impact of ancillary activities associated with the development, such as increased road and rail traffic movements, or other forms of transportation."*
EN-1, paragraph 5.12.9	*"Operational noise, with respect to human receptors, should be assessed using the principles of the relevant British Standards and other guidance. Further information on assessment of particular noise sources may be contained in the technology specific NPSs. In*

NPS Reference	NPS Requirement
	particular, for renewables (EN-3) and electricity networks (EN-5) there is assessment guidance for specific features of those technologies. For the prediction, assessment and management of construction noise, reference should be made to any relevant British Standards and other guidance which also give examples of mitigation strategies."
EN-1, paragraph 5.12.10	*"The applicant should consult the EA and / or the SNCB, and other relevant bodies, such the MMO or NRW, as necessary, and in particular regarding assessment of noise on protected species or other wildlife."*
EN-1, paragraph 5.12.12	*"Applicants should submit a detailed impact assessment and mitigation plan as part of any development plan, including the use of noise mitigation and noise abatement technologies during construction and operation."*
EN-1, paragraph 5.12.15	*"The project should demonstrate good design through selection of the quietest or most acceptable cost-effective plant available; containment of noise within buildings wherever possible, taking into account any other adverse impacts that such containment might cause (e.g. on landscape and visual impacts; optimisation of plant layout to minimise noise emissions; and, where possible, the use of landscaping, bunds or noise barriers to reduce noise transmission)."*
EN-1, paragraph 5.12.16	*"A development must be undertaken in accordance with statutory requirements for*

NPS Reference	NPS Requirement
	noise. Due regard must be given to the relevant sections of the Noise Policy Statement for England, the NPPF, and the government's associated planning guidance on noise."
EN-3, paragraph 2.12.103-4	*"the method of assessing the impact of noise from a wind farm on nearby residents is described in the report, 'The Assessment and Rating of Noise from Wind Farms' (ETSU-R97)124. This was produced by the Working Group on Noise from Wind Turbines Final Report, September 1996 and the report recommends noise limits that seek to protect the amenity of wind farm neighbours. Therefore, noise limits will often influence the separation of wind turbines from residential properties."* *"The applicant's assessment of noise from the operation of the wind turbines should use ETSU-R-97125, taking account of the industry good practice126. This should include any guidance on best practice that the government may publish".*
EN-5, paragraph 2.9.40-44	*"For the assessment of noise from substations, standard methods of assessment and interpretation using the principles of the relevant British Standards28 are satisfactory."* *"For the assessment of noise from overhead lines, the applicant must use an appropriate method to determine the sound level produced by the line in both dry and wet weather conditions, in addition to assessing the impact on noise-sensitive receptors."* *"For instance, the applicant may use an appropriate noise modelling tool or tools for the prediction of overhead line noise and its*

NPS Reference	NPS Requirement
	propagation over distance, such as an ISO 9613-2 or Technical Report TR(T)94." *"When assessing the impact of noise generated by overhead lines in wet weather relative to existing background sound levels, the applicant should consider the effect of varying background sound levels due to rainfall."* *"The Secretary of State is likely to regard it as acceptable for the applicant to use a methodology that demonstrably addresses these criteria."*

13.2.2.2 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)[318]

The NPPF, revised in December 2024, sets out the Government's planning policies for England, and how they are expected to be applied. The following NPPF paragraphs are relevant to onshore noise and vibration.

Paragraph 187e. *"Planning policies and decisions should contribute to and enhance the natural and local environment by ... preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability"*.

Paragraph 198a and b. *"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*

[318] Ministry of Housing Communities & Local Government (2024) National Planning Policy Framework. Available online at: https://www.gov.uk/government/publications/national-planning-policy-framework--2

° *mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*

° *identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason".*

13.2.2.3 NOISE POLICY STATEMENT FOR ENGLAND (NPSE) 2010[319]

The NPSE sets out the long-term vision of the government's noise policy: "Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development." The NPSE sets out aims that together with the vision should provide the necessary clarity and direction to enable decisions to be made regarding what is an acceptable noise burden to place on society: avoid significant adverse impacts on health and quality of life; mitigate and reduce adverse impacts on health and quality of life; and where possible, contribute to the improvement of health and quality of life.

13.2.3 LOCAL PLANNING POLICY

Local planning policy relevant to noise matters will be identified and drawn from the Northumberland Local Plan 2016-2036**[320]**. Key policies include:

- STP 5 Health and Wellbeing;
- ENV 4 Tranquillity, dark skies and a sense of rurality;
- Policy POL 2 Pollution and air, soil and water quality; and
- Policy REN 2 Onshore wind energy development.

In addition, Paragraphs 12.15 and 12.16 state the following in relation to noise:

"Noise is an important consideration for developments either for uses which are sensitive to noise or for uses which generate noise, and for any development in proximity of an existing source of noise. Noise

[319] Department for Environment, Food & and Rural Affairs. Noise Policy Statement for England (NPSE). London : Crown Copyright 2010, 2010. https://assets.publishing.service.gov.uk/media/5a7956e0ed915d0422067947/pb13750-noise-policy.pdf

[320] Northumberland County Council (2022) Northumberland Local Plan 2016-2036. Online. Available online at: https://www.northumberland.gov.uk/planning-and-building/planning-policy/northumberland-local-plan-2016-2036

assessments, which should set out mitigation measures, and have regard to the Noise Policy Statement for England, will be required for any application for a development that will introduce a noise source or that will create a sensitive receptor to existing noise source. Assessing noise impacts can be complex, and regard must be given to the prevailing ambient conditions, and the cumulative impacts that may arise from multiple sources. In determining the significance and acceptability of the likely impacts, good practice guidance from the World Health Organisation will be a key factor.

A noise assessment will be required to support proposals that raise issues of disturbance, or are considered to be noise sensitive developments. They should outline the potential sources of noise generation, how these may have a negative effect on local amenity and environmental receptors, and detail what mitigation is intended to overcome these issues. Examples of proposals where a noise impact assessment may be required are … development[s] related to energy generation; [etc.]"

The Northumberland National Park Local Plan[321] adopted in 2020 key policies include:

- Policy DM 11 Landscape, Tranquilly and Dark Night Skies.

13.2.4 GUIDANCE

- British Standard 5228-1:2009+A1:2014 "Code of practice for noise and vibration control on construction and open sites" — Part 1: Noise (BS 5228-1)[322]
- British Standard 5228-2:2009+A1:2014 "Code of practice for noise and vibration control on construction and open sites" — Part 2*:* Vibration (BS 5228-2)[323]

[321] Northumberland National Park Authority (2020) Northumberland National Park Local Plan. Online. Available online at: https://www.northumberlandnationalpark.org.uk/wp-content/uploads/2020/09/Northumberland-National-Park-Local-Plan-July-2020-.pdf

[322] British Standards Institution (BSI) (2009a) BS 5228-1:2009+A1:2014. Code of practice for noise and vibration control on construction and open sites – Part 1: Noise.

[323] British Standards Institution (BSI) (2009b) BS 5228-2:2009+A1:2014. Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration.

- Design Manual for Roads and Bridges – LA111 Noise and Vibration (DMRB LA111) 2020[324]
- Calculation of Road Traffic Noise (CRTN) 1988[325]
- British Standard 4142: 2014+A1:2019 "Methods for Rating and Assessing Industrial and Commercial Sound" (BS 4142)[326]
- British Standard 8233: 2014 "Guidance on sound insulation and noise reduction for buildings" (BS 8233)[327]
- ETSU-R-97 "The Assessment and Rating of Noise from Wind Farms" (ETSU-R-97) 1996[328]
- Institute of Acoustics "A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise" (IoA GPG) 2013[329]
- ISO 9613-2:2024 "Acoustics — Attenuation of sound during propagation outdoors"[330]
- Planning Practice Guidance for Noise (issued 2014, last updated 2019)[331]
- Institute of Environmental Management and Assessment "Guidelines for Environmental Noise Impact Assessment" 2014[332]

[324] Highways England (2020) Design Manual for Roads and Bridges (DMRB): LA 111 – Noise and vibration.
[325] Department of Transport (1988) Calculation of Road Traffic Noise.
[326] British Standards Institution (BSI) (2014a) BS 4142:2014+A1:2019. Methods for rating and assessing industrial and commercial sound.
[327] British Standards Institution (BSI) (2014b) BS 8233:2014. Guidance on sound insulation and noise reduction for buildings.
[328] Department of Trade and Industry (DTI) (1996) ETSU-R-97: The assessment and rating of noise from wind farms.
[329] Institute of Acoustics (2013) A good practice guide to the application of ETSU-R-97 for the assessment and rating of wind turbine noise.
[330] International Organization for Standardization (ISO) (2024) ISO 9613-2:2024. Acoustics — Attenuation of sound during propagation outdoors — Part 2: General method of calculation.
[331] Ministry of Housing, Communities and Local Government, Ministry of Housing, Communities & Local Government (2018 to 2021) and Department for Levelling Up, Housing and Communities (2019) Planning Practice Guidance for Noise. Available online at: https://www.gov.uk/guidance/noise--2
[332] Institute of Environmental Management and Assessment (IEMA) (2014) Guidelines for environmental noise impact assessment.

- Institute of Sustainability and Environmental Professionals: Environmental Impact Assessment Guide to Shaping Quality Development (ISEP EIA Guide)[333]

It should be noted ETSU-R-97 is currently under review and revised guidance to replace ETSU-R-97 will be published in the future. A consultation draft of the revised guidance was released in July 2025, however until the final version is issued ETSU-R-97 remains the relevant assessment guidance for operational wind turbine noise.

13.3 BASELINE CONDITIONS AND KEY SENSITIVITIES

13.3.1 STUDY AREA

The Proposed Development is within a rural location. The closest isolated residential properties are located within 500m west of the Scoping Boundary of the Proposed Development, and the closest settlements of East and West Woodburn located within 1 km southwest of the Scoping Boundary. The overall noise Study Area concerns the respective study areas associated with construction, decommissioning, operational BESS, and operational wind turbine noise.

The construction and decommissioning noise Study Area is 300 m from construction and decommissioning activities, including the grid route Cable Corridor Options and access route areas, aligning to the guiding principles of BS 5228-1. However, it is recognised that many construction activities are likely to occur in rural areas where background levels are low and it may be relevant to extend this Study Area to 1 km, subject to the likelihood of potential impacts. The extent of this Study Area will be determined during the assessment of impacts.

The operational noise Study Area, inclusive of the BESS, substation and associated infrastructure (including electrical hum and corona discharge noise from overhead line as necessary), is limited to 2 km from the relevant noise sources. While BS 4142 does not specifically stipulate this area, it is a commonly adopted practice to use this definition within the assessment of noise in relation to a BESS site.

The operational wind turbine noise Study Area will broadly align to the calculated 35 decibel (dB) L_{A90} contour of the Proposed Development,

[333] Institute of Sustainability and Environmental Professionals (ISEP) (2022) Environmental impact assessment guide to shaping quality development

combined with the area expected to be potentially affected by cumulative developments, which is stipulated in the IoA GPG as the following:

"If the proposed wind farm produces noise levels within 10 dB of any existing wind farm/s at the same receptor location, then a cumulative noise impact assessment is necessary. Equally, in such cases where noise from the proposed wind farm is predicted to be 10 dB greater than that from the existing wind farm (but compliant with ETSU-R-97 in its own right), then a cumulative noise impact assessment would not be necessary."

There are several operational/consented wind farm developments within approximately 10 km or less of the proposed Site boundary, as shown in **Figure 13.2**. These comprise:

- Ray (16 turbines, 54.4 MW) directly south of the Site boundary;
- Green Rigg (18 turbines, 36 MW) approximately 5 km to the south of the Site boundary;
- Fallowlees Farm (2 Turbines; 1.2 MW) approximately 7 km to the northeast of the Site boundary;
- Kirkheaton (3 turbines, 1.8 MW) approximately 11 km to the southeast of the Site boundary;
- Wingates (6 Turbines, 2.5 MW) approximately 12 km to the northeast of the Site boundary.

These components of the overall noise Study Area are still being refined as the design of the Proposed Development develops through the iterative design phases, and the Noise ES chapter will consider noise effects as relevant in line with the appropriate legislation, policy and guidance.

13.3.2 NOISE AND VIBRATION SENSITIVE RECEPTORS

Noise and vibration sensitive receptors are defined as locations or properties, typically residential dwellings, which have the potential to be adversely affected by noise and vibration. Noise and vibration sensitive receptors will be identified in accordance with relevant guidance. The list of noise sensitive receptors will be developed to improved understanding of the local environment during the life cycle of the assessment, and changes in the design yielding changes to the Study Area.

A noise model of the preliminary turbine layout has been used to derive an initial 35 dB L_{A90} contour. An initial set of noise sensitive receptors has been identified within this contour to be considered within the assessment of the

operational wind farm noise. This selection was undertaken via a detailed review of aerial photography combined with AddressBase information and are presented in **Figure 13.1: Noise Sensitive Receptors**.

Receptors which are noise and vibration sensitive to other potential impacts from the Proposed Development (presented in **Section 13.4**) will be identified as part of the assessment.

Ecological receptors are assessed separately within the Ecology Chapter (Chapter 9), where likely significant effects on designated sites, habitats and species are considered in accordance with relevant ecological guidance and survey data. Users of Public Rights of Way (PRoW) are not considered noise or vibration sensitive receptors for the purposes of the operational noise assessment; however, they are considered within the Landscape and Visual Impact Assessment (LVIA) Chapter (**Chapter 6**) where appropriate, in relation to visual amenity and recreational experience. The definition of noise and vibration sensitive receptors is therefore limited to fixed, noise-sensitive locations such as residential dwellings and other relevant occupied buildings, in accordance with applicable guidance.

13.3.3 BASELINE NOISE MONITORING

Baseline noise monitoring will be carried out to gather key baseline information which will be used in the assessments of construction, operational and decommissioning noise.

ETSU-R-97 requires the baseline environment within the Study Area to be characterised by measuring background noise levels as a function of site wind speed at noise sensitive receptors or at locations representative of noise sensitive receptors. This data will be used in conjunction with relevant lower fixed limits to derive the Total ETSU-R-97 Noise Limits for noise sensitive receptors.

ETSU-R-97 presents minimum requirements for noise monitoring:

- Data will be recorded in continuous 10-minute intervals until a sufficient amount data[334] is recorded. Concurrent wind speed, wind direction, and rain data will be recorded using a LiDAR system, weather station or other

[334] IoA GPG paragraph 2.9.5: *"As a guideline, the survey should be of sufficient duration to acquire no fewer than 200 valid data points for each of the amenity hours and night periods in the wind speed range required and no fewer than 5 valid data points in any 1 m/s wind speed 'bin' within this range."*

appropriate unit. Weather data will be averaged over the same 10-minute intervals and for the same period as the noise data.

- ETSU-R-97 requires that any such measurements are not significantly influenced by existing operational turbines, to prevent unreasonable cumulative increases. Where existing operational turbines exist within the area of interest, downwind contributions from these turbines will be directionally filtered and excluded from the baseline data.
- Weather data will be analysed and where rainfall has occurred the corresponding noise data will be excluded from the assessment.
- The potential implication of wind shear (a change in wind speed with height) effects of the Proposed Development will be included in line with best practice set out in the IoA GPG. Hub height wind data will be re-expressed using the standardised 10 m wind reference in accordance with the IoA GPG using the 'log law' equation and a ground roughness of 0.05 m.

The background sound levels used in the operational noise assessment of the BESS and associated infrastructure (including electrical hum and corona discharge noise from overhead line as necessary) will be determined using the same dataset, implemented in accordance with BS 4142. The background sound levels will be used to determine the relevant construction noise thresholds in accordance with BS 5228-1. Baseline vibration monitoring will not be required for the assessment of the Proposed Development. This is because the assessment of vibration will be conducted against fixed thresholds and not existing baseline.

A consultation letter presenting the survey methods and selection of noise monitoring locations was shared with the Environmental Health Department of Northumberland County Council on 23rd March 2026 for comment. On the 21st of April 2026 the council responded to the consultation letter and listed no points of objection.

13.4 POTENTIAL IMPACTS AND LIKELY SIGNIFICANT EFFECTS

There is potential for the Proposed Development to impact the ambient noise environment at sensitive receptors, during both construction, operational and decommissioning phases. Moreover, any quantified impact will be inclusive of the effect of existing neighbouring wind farm developments where appropriate.

13.4.1 EFFECTS SCOPED IN

This section details likely significant effects scoped in to the assessment due to the potential for impact pathways at Noise Sensitive Receptors.

13.4.1.1 CONSTRUCTION AND DECOMMISSIONING NOISE

A specific assessment of construction and decommissioning noise will be undertaken to assess the potential noise impact at Noise Sensitive Receptors during the construction and decommissioning phases of the Proposed Development, including traffic and cable route construction noise, and blasting vibration and air-overpressure where applicable.

It is expected that information on decommissioning will be limited during the preparation of the Noise ES chapter. However, decommissioning activities are expected to be broadly comparable in nature and scale to those undertaken during construction. On this basis, it is considered reasonable to assume that the noise impacts associated with decommissioning will be no greater than those identified for the construction phase, and the conclusions of the decommissioning assessment are therefore expected to align with those of the construction noise assessment. It is expected that the conclusions of the decommissioning noise assessment will align to the conclusions of the construction noise assessment on the basis that the impacts will be no worse.

13.4.1.2 WIND TURBINE AND BESS OPERATIONAL NOISE

A specific assessment of operational noise from the Proposed Development will be undertaken to assess the potential noise impact at noise sensitive receptors, specifically associated with the wind turbines, BESS, substation and associated infrastructure (including electrical hum and corona discharge noise from overhead line as necessary).

13.4.2 EFFECTS SCOPED OUT

This section details effects scoped out of the assessment including a literature review of relevant and applicable documentation.

13.4.2.1 INFRASOUND AND LOW-FREQUENCY NOISE

A specific assessment of infrasound and low frequency noise would not be considered necessary as studies show these do not cause adverse health effects. Moreover it is expected these effects would not be perceptible at the closest distances from noise sensitive receptors to the Proposed Development, given the inverse relationship of sound pressure and distance, and the

relatively high threshold of perception for infrasound and low frequency noise. This conclusion is supported by the separation distance between the Proposed Development and the nearest noise-sensitive receptor, which is approximately 500 m to the closest proposed turbine. Hence these effects should be scoped out of the Noise EIA chapter in consideration of the following evidence.

- The 2006 study "*The measurement of low frequency noise at three UK wind farms.*" by Hayes McKenzie, on behalf of the former Department of Trade and Industry, found no evidence of health effects arising from infrasound or low frequency noise generated by wind turbines and suggested instead complaints attributed to low frequency noise were most likely due to amplitude modulation.[335]
- The 2009 article "Prediction and Assessment of Wind Turbine Noise: Agreement about relevant factors for noise assessment from wind energy projects." published in the Institute of Acoustics Bulletin stated: "*...there is no robust evidence that low frequency noise (including 'infrasound') or ground-borne vibration from wind farms generally has adverse effects on wind farm neighbours"*.[336]
- The 2013 study "*Infrasound levels near wind farms and in other environments*" by the Environmental Protection Authority of South Australia measured infrasound levels at urban locations and rural locations with wind turbines close by, and rural locations with no wind turbines in the vicinity. It found that infrasound levels near wind farms are comparable to levels away from wind farms in both urban and rural locations. Infrasound levels were also measured during organised shutdowns of the wind farms; the results showed that there was no noticeable difference in infrasound levels whether the turbines were active or inactive. The study also discussed the threshold of perception for infrasound and low frequency noise.[337]

[335] Hayes McKenzie Partnership (2006) *The measurement of low frequency noise at three UK wind farms*. Report for the Department of Trade and Industry, URN 06/1412.
[336] Institute of Acoustics (2009) 'Prediction and assessment of wind turbine noise: agreement about relevant factors for noise assessment from wind energy projects', *Acoustics Bulletin*, March/April 2009.
[337] Evans, T., Cooper, J. and Lenchine, V. (2013) *Infrasound levels near wind farms and in other environments*. Adelaide: South Australia Environment Protection Authority. Available online at: https://renen.ru/wp-content/uploads/2015/09/Wind-Farms-infrasound.pdf

- The 2023 report "*A review of noise guidance for onshore wind turbines*" by WSP, on behalf of the former Department for Business, Energy & Industrial Strategy, stated: *"It has been demonstrated in controlled experiments, including the involvement of participants self-reporting to be sensitive to wind turbine infrasound, that exposure to infrasound at levels representative of wind turbine emissions at dwellings is not associated with physiological or psychological health effects, whereas the expectation of effects from being exposed to wind turbine infrasound, and positive or negative messages influencing that expectation, can affect health symptom reporting. Overall, the findings from the existing evidence base indicate that infrasound from wind turbines at typical exposure levels has no direct adverse effects on physical or mental health, and reported symptoms of ill-health are more likely to be psychogenic in origin."*[338]
- The 2023 study *"The Health Effects of 72 Hours of Simulated Wind Turbine Infrasound: A Double-Blind Randomized Crossover Study in Noise-Sensitive, Healthy Adults."* published in the United States National Institute of Environmental Health Perspectives Journal stated: *"Our findings did not support the idea that infrasound causes WTS* [Wind Turbine Syndrome, a term for adverse human health effected related to the proximity of wind turbines]*. High level, but inaudible, infrasound did not appear to perturb any physiological or psychological measure tested in these study participants."*[339]

13.4.2.2 AMPLITUDE MODULATION

Amplitude Modulation (AM) is defined as the regular variation in noise level of a given noise source. This variation occurs at a specific frequency, and for wind turbines is defined by the rotational speed of the blades. There is a distinction between normal AM from wind turbines, characterised as blade swish, and enhanced AM or Other AM (OAM), sometimes characterised as a thump. It should be noted that ETSU-R-97 acknowledges normal AM but does not prescribe a specific numerical penalty.

[338] WSP (2023) *A review of noise guidance for onshore wind turbines*. Report for the Department for Business, Energy & Industrial Strategy. Available online at: https://www.wsp.com/en-gb/insights/wind-turbine-noise-report
[339] Marshall, N.S. et al. (2023) 'The health effects of 72 hours of simulated wind turbine infrasound: a double-blind randomised crossover study in noise-sensitive, healthy adults', *Environmental Health Perspectives*, 131(3), p. 37012. Available online at: https://europepmc.org/article/PMC/PMC10032045

A specific assessment of amplitude modulation would not be considered necessary as there is currently no agreed methodology used to predict the occurrence of AM or an agreed methodology used to determine whether the effects of AM are likely to be significant. Hence this effect should be scoped out of the Noise ES chapter in consideration of the following evidence.

- The 2007 study "*Research into Aerodynamic Modulation of Wind Turbine Noise*" by the University of Salford on behalf of the Department for Business, Enterprise and Regulatory Reform concluded that OAM had occurred at only a small number (4 of 133) of wind farms in the UK, and only for between 7% and 15% of the time. It also stated that the causes of OAM were not well understood, and that prediction of the effect was not then currently possible.[340]
- The 2013 study "*Wind Turbine Amplitude Modulation: Research to Improve Understanding as to its Cause & Effect Work*" by Renewable UK identified that many of the previously suggested causes of AM have little or no association to the occurrence of AM in practice. The generation of AM is based upon the interaction of several factors, which are unique to each site. With the current state of knowledge, it is not possible to predict whether a site is more or less likely to give rise to AM, and the incidence of AM occurring at a site remains low.[341]
- The 2016 report "*A Method for Rating Amplitude Modulation in Wind Turbine Noise*" by the Institute of Acoustics proposed a measurement technique to quantify the level of AM present in any particular sample of wind farm noise.[342]

[340] Moorhouse, A.T., Hayes, M., von Hünerbein, S., Piper, B.J. and Adams, M.D. (2007) *Research into aerodynamic modulation of wind turbine noise: final report*. Report for the Department for Business, Enterprise and Regulatory Reform. URN 07/1235. Available online at: https://webarchive.nationalarchives.gov.uk/ukgwa/20090608233228/http://www.berr.gov.uk/files/file40570.pdf

[341] Renewable UK (2013) *Wind Turbine Amplitude Modulation: Research to Improve Understanding as to its Cause & Effect*. Available online at: https://www.ref.org.uk/Files/RUK-C.pdf and https://www.ref.org.uk/Files/RUK-D.pdf

[342] Institute of Acoustics AM Working Group (2016) *A method for rating amplitude modulation in wind turbine noise*. IOA Final Report. Available online at: https://www.ioa.org.uk/sites/default/files/AMWG%20Final%20Report-09-08-2016_0.pdf

- The 2016 report "Review of the evidence on the response to amplitude modulation from wind turbines, with recommendations on control through the use of a planning condition" by WSP/Parsons Brinkerhoff on behalf of the Department of Energy & Climate Change, defined an appropriate assessment method for AM, including a penalty scheme and an outline planning condition.[343]
- The 2023 report "*A review of noise guidance for onshore wind turbines*"[344] by WSP, on behalf of the former Department for Business, Energy & Industrial Strategy, stated: *"At present, it seems evident that reliable predictions of AM in the context of development planning and noise assessment guidance are unlikely to be practically feasible in the near future."*

13.4.2.3 OPERATIONAL VIBRATION

A specific assessment of operational vibration would not be considered necessary as ground borne wind turbine vibration would not be perceptible at the closest vibration sensitive receptor to the Proposed Development, approximately 500 m to the closest proposed turbine. Hence this effect should be scoped out of the Noise ES chapter in consideration of the following evidence.

- The 2005 study *"Microseismic and Infrasound Monitoring of Low Frequency Noise and Vibrations from Windfarms"* by Keele University, on behalf of the Ministry of Defence, Department of Trade and Industry and British Wind Energy Association, found the levels of vibration from wind turbines were so small that only the most sophisticated instrumentation could reveal their presence, and they are almost impossible to detect. They issued the statement: *"Vibrations at this level and in this frequency range will be available from all kinds of sources such as traffic and background noise – they are not confined to wind turbines. To put the level of vibration into context, they are ground vibrations with amplitudes of about one millionth*

[343] WSP, Parsons Brinckerhoff (2016) *Review of the evidence on the response to amplitude modulation from wind turbines, with recommendations on control through the use of a planning condition*. Report for the Department of Energy & Climate Change. Available online at: https://www.gov.uk/government/publications/review-of-the-evidence-on-the-response-to-amplitude-modulation-from-wind-turbines

[344] WSP (2023) A review of noise guidance for onshore wind turbines

of a millimeter. There is no possibility of humans sensing the vibration and absolutely no risk to human health."[345]

13.4.2.4 CONSTRUCTION AND DECOMMISSIONING VIBRATION

A specific assessment of construction and decommissioning vibration would not be considered necessary as vibration inducing activities such as piling or compacting are not expected to take place within 100 m of sensitive receptors, which is the recognised study area for construction vibration impacts in line with BS 5228-2 methodology. Hence this effect should be scoped out of the Noise ES chapter. Note that this assessment is separate from the assessment of construction vibration and air overpressure in relation to blasting.

13.4.2.5 OPERATIONAL UNDERGROUND CABLE ROUTE NOISE

A specific assessment of operational underground cable route noise would not be considered necessary as the underground cable is not anticipated to generate significant noise. Hence this effect should be scoped out of the Noise ES chapter.

13.4.2.6 OPERATIONAL TRAFFIC NOISE AND VIBRATION

A specific assessment of operational traffic noise would not be considered necessary as road traffic commuting to and from the Proposed Development is expected to be minimal, as outlined in **Chapter 12: Access, Traffic and Transport**. A specific assessment of operational traffic vibration would not be considered necessary as operational vibration is scoped out of the DMRB LA111 methodology. Hence this effect should be scoped out of the Noise ES chapter.

13.5 ASSESSMENT METHODOLOGY

13.5.1 CONSTRUCTION AND DECOMMISSIONING NOISE

Consideration will be given to the potential impact of construction traffic on sensitive receptors in the area. Depending upon the outcome of the assessment of traffic (see **Chapter 12: Access, Traffic and Transport**), the impact of traffic along the Proposed Development's on-site access route will be

[345] Styles, P., Stimpson, I., Toon, S., England, R. and Wright, M. (2005) *Microseismic and infrasound monitoring of low frequency noise and vibrations from windfarms: recommendations on the siting of windfarms in the vicinity of Eskdalemuir, Scotland*. Keele University. Report for the Ministry of Defence, Department of Trade and Industry and British Wind Energy Association. Available online at: https://docs.wind-watch.org/AEG-Eskdalemuir.pdf

assessed based on the methodology within BS 5228-1, CRTN and DMRB LA111 where appropriate depending on the level of traffic.

The construction noise assessment, including the main development area and the cable corridor options, will be undertaken according to the guidance outlined in BS 5228-1. The prediction of construction noise levels will be undertaken using the calculation methodologies presented in BS 5228-1 and ISO 9613-2, depending on the relevance, together with published noise data for assumed construction plant.

The assessment of likely significant effects from construction noise will enable the identification of appropriate mitigation measures. In this respect, relevant working practices, traffic routes, and proposed working hours will be considered in the assessment. The candidate ABC method in BS 5228-1 stipulates that, for receptors with a low noise background environment, construction noise levels above 65 dB $L_{Aeq,T}$ daytime, 55 dB $L_{Aeq,T}$ evenings and weekends, or 45 dB $L_{Aeq,T}$ night-time has the potential to constitute a likely significant effect depending on context.

To undertake an assessment of the construction noise impact the following steps will be undertaken:

- Identification of the noise sensitive receptors near potential construction activities and select representative construction noise assessment locations;
- Identification of the applicable threshold of significant effects from BS 5228-1;
- Predict the noise levels for various construction noise activities;
- Compare predicted noise levels against the applicable threshold;
- Where necessary, develop suitable mitigation measures to reduce any significant effects during the construction stage; and
- Assess any residual effects taking into account any identified mitigation measures.

13.5.1.1 CONSTRUCTION BLASTING

Any blasting, if used for rock extraction at borrow pits, may create vibration and air overpressure which may require consideration within the assessment undertaken according to the guidance outlined in BS 5228-2, BS 6472-2, and BS 7385-2 as relevant.

13.5.2 OPERATIONAL WIND TURBINE NOISE

The wind farm operational noise assessment will be undertaken according to the guidance outlined in ETSU-R-97 and the IoA GPG which detail a methodology to establish noise limits for proposed wind farm developments. ETSU-R-97 states that noise limits should be set relative to existing background noise levels at the nearest noise sensitive receptors (see **Section 13.3.3**) and that these limits should reflect the variation in both turbine source noise and background noise with wind speed.

Separate noise limits will apply for daytime and for night-time periods. Daytime limits are chosen to protect a property's external amenity, and night-time limits are chosen to prevent sleep disturbance indoors, with windows open.

The noise assessment for the Proposed Development will be undertaken in the following stages:

- Determine the 'Total ETSU-R-97 Noise Limits' which are applicable to the operation of all developments in the area;
- Undertake a cumulative assessment to determine whether predictions from all cumulative developments meet the Total ETSU-R-97 Noise Limits;
- Derive a set of 'Site-Specific Noise Limits'; and
- Undertake predictions to determine whether the Proposed Development can operate within the Site-Specific Noise Limits.

ETSU-R-97 recommends that wind farm noise for the daytime periods should be limited to whichever is highest between 5 dB above the prevailing background noise level or a fixed minimum level within the range 35 – 40 dB L_{A90}. For the latter, choosing a noise limit within the range 35 – 40 dB L_{A90} depends on several factors, including the number of dwellings in the neighbourhood of the wind farm, the effect of noise limits on the number of kWh generated (larger sites tend to suggest a higher figure) and the duration and level of exposure to any noise. These factors will be considered and a justification for deriving suitable noise limits will be referred to in the noise assessment.

Where a property occupier has a financial involvement with the Proposed Development, there is an exception to the fixed minimum limits. In that case the fixed minimum limit can be increased to 45 dB L_{A90} or 5 dB above the prevailing background noise level, whichever is the greater. This is applicable to both the daytime and night-time periods.

The guidance outlined in the IOA GPG will be used to establish suitable Site-Specific Noise Limits which account for the proportion of Total ETSU-R-97 Noise Limits already allocated to existing operational and consented wind farms in the area. The noise assessment will include predictions of likely wind turbine noise levels across a range of wind speeds to demonstrate compliance with the Total ETSU-R-97 and Site-Specific Noise Limits.

Defining significant effect levels is outside the scope of ETSU-R-97. However, in the context of this assessment, an exceedance of ETSU-R-97 would be considered Significant Adverse Effect.

The turbine area is located entirely within the administrative area of Northumberland County Council. Detailed consultation will be undertaken with the Environmental Health Department of Northumberland County Council on the overall assessment methodology. As the design is refined and the cable corridors become clear, consultation will be undertaken with any other Councils that may interface the cable route.

13.5.3 OPERATIONAL BESS AND ASSOCIATED INFRASTRUCTURE NOISE

The BESS, substation and associated infrastructure (including electrical hum and corona discharge noise from overhead line as necessary) operational noise assessment will be undertaken according to the guidance outlined in BS 4142. BS 4142 outlines guidance on the assessment of industrial and commercial noise, according to the difference between the background sound level and rating level at noise sensitive receptors.

The rating level is derived from the specific sound level at a noise sensitive receptor with appropriate character correction penalties applied including tonal elements, impulsivity, intermittency and distinctiveness. This level is assessed against the existing background sound level at each noise sensitive receptor to determine the likely significant effects. Context has a significant role in determining the final assessment of significance in a BS 4142 assessment. For situations where the background noise is very low, it may be appropriate to draw on guidance in BS 8233 to conclude a final assessment of significance.

13.5.4 CUMULATIVE EFFECTS

13.5.4.1 CUMULATIVE WIND FARMS

The potential noise emissions from neighbouring wind farm sites will be referred to within a cumulative assessment by examining the potential level of

noise emission allowed under the respective consent for each of the sites, in line with current best practice (ETSU-R-97 and IoA GPG).

The ETSU-R-97 limits, for each noise sensitive receptor, apply to the total noise produced by all wind farms. Therefore, potential cumulative operational noise levels, including existing, consented, under construction and proposed wind turbines in the area, must be assessed relative to these limits. This is the case unless it is considered that these effects are likely to be negligible: the GPG suggests that cumulative noise effects need not be considered where differences between the noise level contribution of two wind farms are 10 dB or more.

Latest available information on cumulative wind farms in the area will be reviewed to inform this aspect of the assessment.

13.5.4.2 OTHER CUMULATIVE DEVELOPMENTS

Operational noise impacts from other cumulative developments, such as solar farms, may be considered where relevant. If relevant, the implication of noise from cumulative construction traffic from different consented wind farms and other developments as considered appropriate, should the schemes construction phases overlap, will also be considered. Schemes without consent may be considered.

13.5.4.3 IN-COMBINATION EFFECTS

The in-combination noise and vibration effects of wind farm noise and grid connection noise will be assessed as relevant. This will be subject to the placement of operational plant.

13.5.5 ASSUMPTIONS, UNCERTAINTY AND LIMITATIONS

An indicative layout and candidate turbine have been used to inform this Scoping Report, including predicted noise levels and the identification of noise sensitive receptors, and it is anticipated that these could differ from the candidate turbine and layout submitted with the application. Additionally, the design of the substation, BESS and cable route(s) considered in this Scoping Report are also indicative and will be subject to change.

13.6 EMBEDDED MITIGATION

Consideration will be paid to the opportunity to introduce environmental measures and mitigation that will help to avoid or reduce the potential for a likely significant effect to occur, in line with the first and second aims of the

NPSE. Specific environmental measures relevant to Noise will be identified and will be considered as part of the assessment.

It is anticipated that a range of good practice measures will be detailed in an outline Construction Environmental Management Plan (oCEMP) and employed to reduce adverse noise effects. Good onsite construction practices will be implemented to reduce the adverse, likely significant effects. Section 8 of BS 5228-1 recommends several simple control measures that may be employed on site to reduce adverse construction noise effects, summarised in the following:

- Keep local residents informed of the proposed working schedule, where appropriate, including the times and duration of any abnormally noisy activity that may cause concern;
- Ensure that any extraordinary site work continuing throughout 24 hours of a day (for example, crane operations lifting components onto the tower) will be programmed, when appropriate, so that haulage vehicles would not arrive at or leave the site between 19:00 and 07:00, with the exception of abnormal loads that would be scheduled to avoid significant traffic flows;
- Ensure all vehicles and mechanical plant are fitted with effective exhaust silencers and be subject to programmed maintenance;
- Select inherently quiet plant where appropriate - all major compressors will be 'sound reduced' models fitted with properly lined and sealed acoustic covers, which would be kept closed whenever the machines are in use;
- Ensure all ancillary pneumatic percussive tools are fitted with mufflers or silencers of the type recommended by the manufacturers;
- Instruct that machines will be shut down between work periods or throttled down to a minimum;
- Regularly maintain all equipment used on-site, including maintenance related to noise emissions;
- Ensure that vehicles are loaded carefully to ensure minimal drop heights so as to reduce adverse noise during this operation;
- Ensure all ancillary plant such as generators and pumps will be positioned so as to cause minimum noise disturbance and if necessary, temporary acoustic screens or enclosures provided; and
- In addition to the above, all mobile plant will be fitted with directional white noise reversing alarms, which allows alarm noise produced by

reversing vehicles, for example, to dissipate quicker and be focused within the danger zone, as opposed to tonal reversing alarms which cover a broader area and dissipate more slowly.

To ensure compliance with the noise limits during the operation of the Proposed Development, appropriate noise controls within the outline Operational Environmental Management Plan (oOEMP) will be considered where appropriate. Indicative mitigation measures may include the operation of some wind turbines in alternative 'low noise' operational modes under specific wind conditions.

Good site practices, as described for the construction phase, will be applied to reduce adverse noise impacts during the decommissioning phase.

13.7 SUMMARY OF EFFECTS SCOPED IN OR OUT OF THE ASSESSMENT

Table 13.2 contains a list of all receptors and species relating to noise that will be scoped in or out of the assessment.

TABLE 13.2 ENVIRONMENTAL FACTORS TO BE SCOPED IN OR OUT OF THE ASSESSMENT

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
Infrasound and low frequency noise	Scoped out	Studies show infrasound and low frequency noise do not cause adverse health effects.
Amplitude modulation	Scoped out	There is currently no agreed methodology used to predict the occurrence of AM or an agreed methodology used to determine whether the effects of AM are likely to be significant.
Operational vibration	Scoped out	Ground borne wind turbine vibration would not be perceptible.
Construction and decommissioning vibration	Scoped out	Vibration inducing activities such as piling or compacting are not expected to take place in the proximity of noise sensitive receptors.
Operational underground cable route noise	Scoped out	The cable is not anticipated to generate significant noise.
Operational traffic noise	Scoped out	Road traffic commuting to and from the Proposed Development is expected to be minimal.
Construction and decommissioning noise	Scoped in	Construction noise will be assessed for the potential effects during the construction phase of the Proposed Development, including construction traffic and where applicable noise associated with the cable route.

Operational wind farm and BESS noise	Scoped in	Operational noise from the wind farm, BESS, substation and associated infrastructure (including electrical hum and corona discharge noise from overhead line as necessary) will be assessed for the likely significant effects during the operational phase of the Proposed Development.

13.8 CONSULTATION AND SCOPING QUESTIONS

Consultation will take place with Northumberland County Council.

Key questions for consultees are:

- Q13.1 - Can the consultees confirm that they agree with the proposed assessment methodologies, specifically the use of ETSU-R-97 and the IOA GPG to assess operational wind turbine noise, BS 4142 to assess BESS, substation, and associated infrastructure (including electrical hum and corona discharge noise from overhead line as necessary) operational noise, and BS 5228-1 to assess construction noise?
- Q13.2 - Can the consultees agree that assessment of low frequency noise; amplitude modulation; operational, construction and decommissioning vibration; and operational cable route and traffic noise, be scoped out of the EIA?
- Q13.3 - Can the consultees confirm the list of relevant existing, consented, and proposed cumulative wind farm developments?

14. CLIMATE CHANGE AND GREENHOUSE GAS EMISSIONS

14.1 INTRODUCTION

This chapter outlines the proposed approach to the assessment of Climate Change and Greenhouse Gas (GHG) Emissions in the ES. It sets out the proposed methodology for the climate change and GHG emissions assessment and identifies those impacts that are proposed to be scoped in to, and scoped out of, the EIA.

Climate Change Impact Assessment (CCIA) is a relatively new form of environmental assessment required by the amended EC Directive 2014/52/EU108, as transposed into the EIA Regulations, and there is limited guidance to suggest how this should be assessed. This chapter considers the potential likely significant effects of the Proposed Development on climate from GHG emissions (the 'GHG Assessment') and the likely significant effects of climate change on the Proposed Development (the 'Climate Change Risk Assessment' (CCRA)). This chapter also sets out the approach to understanding the effects of climate change on other environment topics assessed in the ES (the 'In-Combination Climate Change Impact' (ICCI) assessment).

14.2 LEGISLATION AND POLICY

This climate change and GHG emissions assessment will be prepared in accordance with current policy, legislation and good practice guidance as outlined below.

14.2.1 LEGISLATION

The relevant international treaties, legislation, policy and guidance that will inform the CCRA, ICCI assessment, and GHG assessment include:

- The Kyoto Protocol[346];
- The Paris Agreement[347];
- The Climate Change Act 2008[348];

[346] United Nations (1997) Kyoto Protocol to the United Nations Framework Convention on Climate Change. Available online at: https://unfccc.int/resource/docs/convkp/kpeng.pdf
[347] United Nations (2015) Paris Agreement. Available online at: https://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf
[348] UK Government (2008) Climate Change Act. Available online at: https://www.legislation.gov.uk/ukpga/2008/27/contents

- The Carbon Budget Orders 2011[349], 2016[350] and 2021[351]; and
- Schedule 4 of the EIA Regulations[352].

14.2.2 NATIONAL POLICY

14.2.2.1 NATIONAL POLICY STATEMENTS

The energy National Policy Statements (NPSs), EN-1 – EN-6, outline the government's policy for delivering major energy infrastructure. The NPSs that are of relevance to the Proposed Development are:

- Overarching National Policy Statement for Energy (EN-1) (2025)[353];
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (2025)[354]; and
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (2025)[355].

Details of specific policies within EN-1 that are considered relevant to climate change are set out in **Table 14.1** below. EN-3 and EN-5 contain no additional requirements with regard to climate change.

[349] UK Government (2011) The Carbon Budget Order 2011. Available online at: https://www.legislation.gov.uk/uksi/2011/1603/made
[350] UK Government (2016) The Carbon Budget Order 2016. Available online at: https://www.legislation.gov.uk/uksi/2016/785/contents/made
[351] UK Government (2021) The Carbon Budget Order 2021. Available online at: https://www.legislation.gov.uk/ukdsi/2021/9780348222616
[352] UK Government (2017) The Town and Country Planning (Environmental Impact Assessment) Regulations 2017. Available online at: https://www.legislation.gov.uk/id/uksi/2017/571
[353] Department for Energy Security & Net Zero (2025) Overarching National Policy Statement for Energy (EN-1). Available online at: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1-2025/overarching-national-policy-statement-for-energy-en-1-2025-accessible-webpage
[354] Department for Energy Security & Net Zero (2025) National Policy Statement for Renewable Energy Infrastructure (EN-3). Available online at: https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3-2025/national-policy-statement-for-renewable-energy-infrastructure-en-3-2025-accessible-webpage
[355] Department for Energy Security & Net Zero (2025) National Policy Statement for Electricity Networks Infrastructure (EN-5). Available online at: https://assets.publishing.service.gov.uk/media/64252f852fa848000cec0f53/NPS_EN-5.pdf

TABLE 14.1 NATIONAL PLANNING POLICY STATEMENTS

NPS Reference	NPS Requirement
EN-1, paragraph 5.3.4	*"All proposals for energy infrastructure projects should include a GHG assessment as part of their ES (See Section 4.3). This should include:* • *A whole life GHG assessment showing construction, operational and decommissioning GHG impacts, including impacts from change of land use.* • *An explanation of the steps that have been taken to drive down the climate change impacts at each of those stages.* • *Measurement of embodied GHG impact from the construction stage.* • *How reduction in energy demand and consumption during operation has been prioritised in comparison with other measures.* • *How operational emissions have been reduced as much as possible through the application of BAT for that type of technology.* • *Calculation of operational energy consumption and associated carbon emissions.* • *Whether and how any residual GHG emissions will be (voluntarily) offset or removed using a recognised framework.* • *Where there are residual emissions, the level of emissions and the impact of those on national and international efforts to limit climate change, both alone and where relevant in combination with other developments at a regional or national level, or sector level, if sectoral targets are developed."*
EN-1, paragraph 5.3.5	*"A GHG assessment should be used to drive down GHG emissions at*

NPS Reference	NPS Requirement
	every stage of the proposed development and ensure that emissions are minimised as far as possible for the type of technology, taking into account the overall objectives of ensuring our supply of energy always remains secure, reliable and affordable, as we transition to net zero."
EN-1, paragraph 5.3.6	*"Applicants should look for opportunities within the proposed development to embed nature-based or technological solutions to mitigate or offset the emissions of construction and decommissioning."*
EN-1, paragraph 5.3.8	*"The Secretary of State must be satisfied that the applicant has as far as possible assessed the GHG emissions of all stages of the development."*

14.2.2.2 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

The NPPF[356], revised in December 2024, sets out the UK Government's planning policies for England and how they are expected to be applied. Chapter 14 of the NPPF is relevant to climate change and GHG emissions, it states in:

- Paragraph 161, that *"The planning system should support the transition to net zero by 2050 and take full account of all climate impacts including overheating, water scarcity, storm and flood risks and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure."*;
- Paragraph 162, that *"Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and*

[356] UK Government (2025) *National Planning Policy Framework*. Available online at: https://www.gov.uk/government/publications/national-planning-policy-framework--2

landscapes, and the risk of overheating and drought from rising temperatures. Policies should support appropriate measures to ensure the future health and resilience of communities and infrastructure to climate change impacts, such as providing space for physical protection measures, or making provision for the possible future relocation of vulnerable development and infrastructure.";

- Paragraph 163, that *"The need to mitigate and adapt to climate change should also be considered in preparing and assessing planning applications, taking into account the full range of potential climate change impacts."*; and
- Paragraph 164, that *"new development should be planned for in ways that avoid increased vulnerability to the range of impacts arising from climate change" and "help to reduce greenhouse gas emissions"*.

14.2.3 LOCAL PLANNING POLICY

Local planning policy relevant to climate change matters will be identified and drawn from:

- The Northumberland Local Plan 2016-2036[357]. Key Policies include:
  - Policy STP 3 Principles of sustainable development; and
  - Policy STP 4 Climate change mitigation and adaptation.
- The Northumberland National Park Local Plan adopted in 2020[358]. Key policies include:
  - Policy ST1 Sustainable Development; and
  - Policy ST2 General Development Principles.
- Northumberland County Council (NCC) Climate Change Action Plan 2024-26[359] (developed as part of the Climate Change Strategy after NCC announced a climate emergency in June 2019).

[357] Northumberland County Council (2022) Northumberland Local Plan 2016 – 2036. Available online at: https://www.northumberland.gov.uk/planning-and-building/planning/planning-policy-and-local-plan/northumberland-local-plan-2016-2036

[358] Northumberland National Park (2020) Northumberland National Park Local Plan. Available online at: https://www.northumberlandnationalpark.org.uk/wp-content/uploads/2020/09/Northumberland-National-Park-Local-Plan-July-2020-.pdf

[359] Northumberland County Council (2024) Climate Change Action Plan 2024 – 26. Available online at: https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/News/2024/March/Square/Climate-Change-Action-Plan-2024-26.pdf

14.2.4 GUIDANCE

Supplementary guidance documents and technical papers relating to renewable energy onshore wind energy and climate change.

The methodology to be used for the CCRA and ICCI assessment will be developed in line with the following guidance:

- Institute of Environmental Management and Assessment (IEMA) (now known as Institute of Sustainability and Environment Professionals (ISEP)) Environment Impact Assessment guide to Climate Change Resilience and Adaptation 2020[360];
- National Planning Policy Guidance: Flood Risk and Coastal Change (2025)[361]; and
- ISEP's Climate Change Adaptation Practitioner Guidance (2022)[362].

The methodology used in the GHG assessment will be developed in line with the following guidance:

- ISEP Environmental Impact Assessment Guide: Assessing Greenhouse Gas Emissions and Evaluating the Significance[363]; and
- Scottish Government's Carbon Calculator for Wind Farms on Scottish peatlands: factsheet[364].

[360] Institute of Sustainability and Environmental Professionals (2020) Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation. Available online at: https://www.iema.net/media/mabhqino/iema-eia-climate-change-resilience-june-2020.pdf
[361] UK Government (2025) National Planning Policy Guidance: Flood Risk and Coastal Change. Available online at: https://www.gov.uk/guidance/flood-risk-and-coastal-change#planning-and-flood-risk
[362] Institute of Sustainability and Environmental Professionals (2022) Climate Change Adaptation Practitioner Guidance. Available online at: https://www.isepglobal.org/media/zavnckc2/climate-change-adaptation-practitioner-guidance.pdf
[363] Institute of Sustainability and Environmental Professionals (2022) Assessing Greenhouse Gas Emissions and Evaluation their Significance. Available online at: https://www.iema.net/media/xmgpoopk/2022_iema_greenhouse_gas_guidance_eia.pdf
[364] Scottish Government (2022) Carbon Calculator for Wind Farms on Scottish Peatland: Factsheet. Available online at: https://www.gov.scot/publications/carbon-calculator-for-wind-farms-on-scottish-peatlands-factsheet/

14.3 BASELINE CONDITIONS AND KEY SENSITIVITIES

14.3.1 GHG ASSESSMENT

The baseline will be assumed to be zero (the 'do nothing' scenario), and any change in GHG emissions that arise as a result of the Proposed Development will be considered in comparison to the baseline scenario. The future baseline is the net change in GHG emissions between the existing baseline and the Proposed Development.

14.3.2 CLIMATE CHANGE RISK ASSESSMENT

The State of the UK Climate 2024[365] provides the latest report on observed climate data for the UK. The climate parameters considered most relevant to the assessments referenced within this chapter are wind speed, temperature, and precipitation. Key findings for this assessment are therefore as follows:

- Observations show the UK's climate is continuing to change, with recent decades being warmer, wetter and sunnier than the 20th Century.
- The last three years have been in the UK's top-five warmest on record, with 2024 being the fourth warmest year on record since 1884.
- Since the 1980s, the UK has been warming at a rate of approximately 0.25°C per decade, with the most recent decade (2015–2024) being 0.41°C warmer than 1991 – 2020 and 1.24°C warmer than 1961–1990;
- 2024 was the UK's 13th wettest year on record since 1836;
- The most recent decade (2015-2024) has been 2% wetter than 1991-2020, and 10% wetter than 1961-1990;
- Observations do not currently suggest that the UK's climate is becoming windier or stormier, with UK annual mean wind speeds from 1969 to 2024 showing a downward trend, consistent with that observed globally (although it is highlighted that this series must be interpreted with some caution); and
- There have been fewer occurrences of maximum gust speeds exceeding 40/50/60 Knots (Kt) in the last two decades compared to the 1980s and 1990s.

The baseline and future climate conditions for the Site will be determined using climate data for the Northumberland administrative area. The current baseline

[365] Kendon *et al.* (2025) State of the UK Climate in 2024. *International Journal of Climatology* 45 (S1). Available online at: https://rmets.onlinelibrary.wiley.com/doi/10.1002/joc.70010

will be based on historic 10-year climate data averages for the Northumberland administrative area between 1970 and 2020 from the UK Met Office.

It is likely that the future baseline will show a continued gradual increase in temperature, higher rainfall, reductions in water availability (particularly during the summer), and an increase in sea level rise. The future baseline will be based on the climate trends released by the Intergovernmental Panel on Climate Change (IPCC) in 2021 (Assessment Report 6) which define a series of climate projections known as Shared Socioeconomic Pathways (SSPs) and the UK Met Office 2018 (UKCP18) Representative Concentration Pathways (RCP) which provide projections up to 2100 for different emission scenarios[366]. These pathways reflect potential changes in net carbon dioxide (CO_2) emissions by combining climate and socio-economic data to create a series of plausible scenarios to reduce the impacts of global GHG emissions. The pathway chosen for the CCRA will be detailed in the ES.

For the future baseline the climate data will cover three-time horizons: 2030, 2050, and 2080 based on the climate projections by the IPCC and UK Met Office. These projections set out the general climate conditions that would be experienced during all phases of the Proposed Development.

The data sources will be accessed through ERM's Global Climate Database (GCD) and will involve:

- Inter-sectoral impact model intercomparison project phase 3b (ISMIP3b). This provides historic and future climate data to assess heatwaves, extreme cold, extreme rainfall and water stress and drought;
- Forest fire danger index which provides baseline and future climate data specific to wildfires;
- Fathom 3.0 flood inundation depth. This provides baseline and future climate data to assess pluvial and fluvial flooding; and
- WRI water risk atlas to understand water stress levels at the Proposed Development.

14.3.3 ICCI ASSESSMENT

The ICCI baseline and future baseline would be detailed in the individual technical chapters within the ES, and will not be detailed separately in the Climate Change and Greenhouse Gas Emissions chapter of the ES.

[366] UK Met Office (n.d.) Climate Projects for the UK in 2018 (CP18). Available online at: https://www.metoffice.gov.uk/research/approach/collaboration/ukcp

14.4 POTENTIAL IMPACTS AND LIKELY SIGNIFICANT EFFECTS

The following impacts have the potential to result from the Proposed Development and shall be considered in the undertaking of further assessment:

- Effects of the Proposed Development on climate change throughout all phases of the Proposed Development (GHG Assessment);
- Effects of climate change on the Proposed Development throughout all phases of the Proposed Development (CCRA); and
- Effects of climate change on assessments made in other topics of the Proposed Development's ES (ICCI Assessment).

For further details of likely significant effects that will be scoped in to and scoped out of further assessment of Climate Change and GHG Emissions, see **Table 14.7**.

14.4.1 GHG ASSESSMENT

The likely effects of the Proposed Development on GHG emissions are twofold. Firstly, there is likely to be an overall carbon saving associated with the Proposed Development through the generation of renewable energy in the place of conventional energy generation. However, this would be balanced against carbon losses associated with the Proposed Development, which are typically related to embodied carbon emissions from materials / manufacture of infrastructure, land use change such as peatland disturbance or forestry felling, and construction / operational processes that involve plant and material which use fuel / energy.

14.4.2 CLIMATE CHANGE RISK ASSESSMENT

Given the climate change trends for the UK, it is possible that future climate change could impact the Proposed Development over its operational period and by the time of decommissioning. The potential impacts of climate change include extreme weather events, changes in temperature and precipitation (including flooding), sea level rise, sea temperature rise, wildfires and wind.

The receptors considered vulnerable to climate change include infrastructure, human health (i.e. workforce) and the environment at each phase of the Proposed Development.

Table 14.2 details the potential climate hazards and their impact on the Proposed Development, and describes the climate hazards that have been scoped out based on the existing climate data and professional judgement.

TABLE 14.2 SCOPE OF CLIMATE CHANGE RISK ASSESSMENT

Climate Hazard	Scope	Rationale
Extreme weather events	In	The Proposed Development may be vulnerable to extreme weather events such as heatwaves and storms. As a result, the impact of extreme weather events on the Proposed Development is scoped in.
Precipitation change (including flood risk)	In	The Proposed Development may be vulnerable to changes in precipitation, for example, pressure on water supply during periods of reduced rainfall (water stress), and increased risks of pluvial and fluvial flooding. Climate hazards related to increased precipitation and flooding will be covered in the Water Resources and Flood Risk chapter of the ES.
Temperature change	In	Increased temperatures (i.e., heat stress, heat / cold waves and frost) may alter the efficiency and integrity of the Proposed Development.
Sea level rise	Out	The Proposed Development is not located in an area that is anticipated to be affected by sea level rise. Therefore, this is scoped out.
Sea temperature rise	Out	Marine infrastructure is not included within the scope of the Proposed Development and therefore it is not likely to be affected by the small increase in sea temperature during its operational life.
Wind	In	High wind speeds and gusts may have an impact on the Proposed Development, through damaging the turbines or making them less efficient.
Wildfires	In	There is the possibility that increased temperatures could cause an increased risk of wildfires on the Site, which may impact the Proposed Development.

14.4.3 IN-COMBINATION CLIMATE CHANGE IMAPCT ASSESSMENT

The ICCI Assessment assesses how projected climate conditions may amplify environmental effects identified in other environmental topic chapters in the ES thorough in-combination impacts. This means assessed effects of the Proposed Development could be more likely or severe in the future due to climatic changes.

14.5 ASSESSMENT METHODOLOGY

The approach to the assessment and proposed methodology has been developed through a combination of professional judgement, established EIA best practice, and relevant legislation, policy and guidance.

14.5.1 GHG ASSESSMENT

The Proposed Development aims to achieve a transition to clean energy through the use of renewable energy sources (in this case wind energy). The Proposed Development involves the construction, operation and decommissioning of wind turbines (and a BESS) in order to generate renewable energy. The GHG assessment will identify and calculate the GHG emissions arising from the Proposed Development during construction, operation and maintenance, and decommissioning. It will consider the increase or decrease in GHG emissions that arise from the Proposed Development.

Given that there is no available tool in England to determine the greenhouse gas emissions savings and losses for English wind farm developments, it is proposed to use the Scottish Government's carbon calculator for wind farm developments to determine the carbon losses and savings for the Proposed Development. Carbon or GHG losses would occur through turbine manufacture, forestry felling, and peatland disturbance, for example, while carbon or GHG savings would occur through the replacement of conventional energy generation with renewable generation as well as any proposed peatland restoration. The carbon calculator would also provide the 'payback period' for the Proposed Development, which is the length of time (in years) it would take the carbon savings to offset the carbon losses (and therefore for the Proposed Development to become carbon neutral).

The input data and outputs of the carbon calculator will be provided as a Technical Appendix to accompany the ES chapter.

For the BESS, a high-level quantitative assessment to determine the carbon losses associated with the construction of the BESS would be completed and incorporated into the results of the carbon calculator. The same approach would be taken for the grid connection.

The assessment would consider the following greenhouse gas emissions from the Proposed Development:

- During the construction phase – turbine and infrastructure manufacture (upstream emissions), peatland and forestry disturbance (land use change), construction processes;

- During the operational phase – emissions savings due to renewable energy generation instead of conventional energy generation, fuel consumption for operational processes, peatland restoration; and
- During the decommissioning phase – decommissioning of turbines and infrastructure, and fuel consumption for decommissioning activities.

The calculated GHG emissions will be assessed against the carbon budgets implemented by the Climate Change Act (2008), in order to determine their magnitude and significance.

Any GHG emissions released to the atmosphere will be classified as an impact to climate change due to the importance of limiting GHG emissions as set out by the Paris Agreement and UK government policy. To understand the significance, the ISEP guidance will be used to evaluate the net GHG emissions impact of the Proposed Development (see **Table 14.3**).

TABLE 14.3 SIGNIFICANCE CRITERIA RELEVANT TO THE GHG ASSESSMENT

Significance	Significance Criteria
Major Adverse	The project's GHG impacts are not mitigated or are only compliant with do-minimum standards set through regulation, and do not provide further reductions required by existing local and national policy for projects of this type. A project with major adverse effects is locking in emissions and does not make a meaningful contribution to the UK's trajectory towards net zero.
Moderate Adverse	The project's GHG impacts are partially mitigated and may partially meet the applicable existing and emerging policy requirements but would not fully contribute to decarbonisation in line with local and national policy goals for projects of this type. A project with moderate adverse effects falls short of fully contributing to the UK's trajectory towards net zero.
Minor Adverse	The project's GHG impacts would be fully consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. A project with minor adverse effects is fully in line with measures necessary to achieve the UK's trajectory towards net zero.
Negligible	The project's GHG impacts would be reduced through measures that go well beyond existing and emerging policy and design standards for projects of this type, such that radical decarbonisation or net zero is achieved well before 2050. A project with negligible effects provides GHG performance that is well 'ahead of the curve' for the

Significance	Significance Criteria
	trajectory towards net zero and has minimal residual emissions.
Beneficial	The project's net GHG impacts are below zero and it causes a reduction in atmospheric GHG concentration, whether directly or indirectly, compared to the without-project baseline. A project with beneficial effects substantially exceeds net zero requirements with a positive climate impact.

Due to the nature of the Proposed Development (renewable energy generation), the assessment will scope out downstream GHG emissions. This is because downstream emissions are specifically focused on fossil fuels, and the future use of the electricity generated by the Proposed Development would not produce further GHG emissions.

14.5.2 CLIMATE CHANGE RISK ASSESSMENT

The CCRA assessment will be undertaken in line with the Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation (2020) developed by ISEP, as well as using professional judgement.

The CCRA evaluates climate risks to the Proposed Development by identifying relevant hazards, assessing the vulnerability of the receptors to the hazard and the likelihood of exposure of the receptors to the hazard to determine both initial and residual risk levels. It uses future climate projections and proposes mitigation actions to enhance climate resilience.

The CCRA involves the following steps:

- Gather baseline and future climate data for the Proposed Development's location;
- Identify potential climate change risks to the Proposed Development by assessing:
  - The hazard (i.e., the climate event itself such as flooding, extreme heat, water stress or wildfires);
  - Vulnerability of the receptors (including environment, workforce and infrastructure) to that hazard (i.e., the consequence of the hazard); and
  - Exposure (i.e., the level or likelihood to which the Proposed Development is exposed to the hazard).

- The CCRA determines the initial inherent risk where no mitigation measures are in place, and then assesses the risk when taking account of embedded mitigation measures; and
- The final step is to determine the likely significant effect of the risk upon the Proposed Development.

Table 14.4 and **Table 14.5** present the criteria to measure exposure (likelihood) and vulnerability (consequence) of the Proposed Development to the climate hazards.

TABLE 14.4 MEASURE OF EXPOSURE (LIKELIHOOD)

Likelihood of Impact	Description
Almost Certain	The climate hazard is expected to exceed a critical threshold under both scenarios, and across all future time horizons.
Likely	The climate hazard is expected to exceed a critical threshold under both scenarios, but only under a specific time horizon.
Possible	The climate hazard may exceed a critical threshold in future, but only under a specific climate scenario and time horizon.
Unlikely	The climate hazard may occur under current conditions but is not projected to exceed a critical threshold in future under all scenarios and time horizons.
Rare	The climate hazard is not currently observed and is not projected to exceed a critical threshold in future under all scenarios and time horizons.

TABLE 14.5 VULNERABILITY (CONSEQUENCE) CRITERIA TO ASSESS IMPACT OF SENSITIVE RECEPTORS

Consequence of Impact	Description
Very Large	Infrastructure; Significant permanent damage and/or complete loss of the infrastructure and infrastructure services. Extreme delays (months) to / cancellation of the construction. Human health; Event leading to 1 or more fatalities on site.

Consequence of Impact	Description
	Environmental; Devastating environmental implications and regulatory non-compliance due to protected species/habitat change. Financial; Extreme financial loss and operation is unviable.
Large	Infrastructure; Extensive infrastructure damage and/or major loss of the infrastructure and infrastructure services. Major (weeks) delays to the construction. Human health; Event leading to long term health issues / disabilities (over 14 days lost work). Environmental; Severe environmental implications and potential new environmental compliance obligations. Financial; Major financial loss and additional operating costs.
Moderate	Infrastructure; Limited infrastructure damage and loss of service, damage recoverable by early maintenance and minor repair. Substantial construction interruption (5 days or more). Human health; Event leading to short term stress, medical treatment required (under 14 days lost work). Environmental; Moderate environmental implications and potential for additional mitigation and/or maintenance needs. Financial; Moderate financial loss and additional operating cost.
Minor	Infrastructure; Localised infrastructure service disruptions, no permanent damage, some minor repair work required. Minor construction interruption (5 days or less). Human health; Event leading to minor discomfort and/or first aid treatment Environmental; Minor environmental implications on landscaping or buffer vegetation and no impacts on protected species/habitats. Financial; Slight financial loss and additional operating costs.
Negligible	Infrastructure; No damage, construction delays or additional operational costs. Human health; No injuries or illness. Environmental; No disturbance or disturbance is already within degraded or non-sensitive area. Financial; No financial loss or costs.

The significance of the climate risk is assessed by considering the vulnerability (consequence) and exposure (likelihood), as shown in **Table 14.6**. Where the climate risk is assessed to be 'medium' or 'high' this would be considered as a significant effect and would require mitigation or adaptation measures to improve the resilience of the receptor where practicable.

TABLE 14.6 SIGNIFICANCE MATRIX

Consequence	Likelihood				
	Rare	Unlikely	Possible	Likely	Almost Certain
Negligible	Very Low	Very Low	Low	Medium	Medium
Minor	Very Low	Low	Low	Medium	High
Moderate	Low	Low	Medium	High	High
Large	Medium	Medium	High	High	Very High
Very Large	Medium	High	High	Very High	Very High

14.5.3 IN-COMBINATION CLIMATE CHANGE IMPACT ASSESSMENT

The ICCI Assessment assesses how projected climate conditions may amplify environmental effects identified in other technical chapters such as increased flooding risks. It evaluates the likelihood and consequence of climate impacts on receptors and recommends additional mitigation only where effects are deemed significant. The ICCI will be based upon the likely significant effects identified in the technical chapters of the ES and will be covered within relevant technical chapters of the ES rather than within the Climate Change and GHG Emissions ES chapter.

14.5.4 CUMULATIVE ASSESSMENT

A cumulative assessment for the Climate Change and Greenhouse Gas Emissions Chapter is not intended. The rationale for this is set out below.

For the GHG Assessment, the global atmosphere is the receptor of GHG emissions. In line with ISEP guidance, any effects resulting from GHG emissions from the Proposed Development itself or other developments are not geographically constrained and are considered global, so a cumulative assessment is not applicable.

The CCRA is specific to the Site and all phases of the Proposed Development, and therefore cumulative effects are not considered relevant to the CCRA in accordance with ISEP guidance.

The ICCI Assessment by its nature assesses the cumulative effects of climate change in relation to the environmental topics considered within the ES. The relevant ES chapters consider cumulative effects on the receptors for each environmental topic.

14.6 MITIGATION

Mitigation measures relating to climate change and GHG emissions will be outlined in the ES. The GHG assessment and CCRA will take account of the embedded mitigation measures integrated into the design of the Proposed Development.

14.6.1 GHG ASSESSMENT

The Proposed Development will be inherently designed to reduce adverse climate change effects by offsetting the production of carbon dioxide (CO_2) through the use of a renewable source for generating electricity. This is in line with global and national policies and targets which are striving to reduce greenhouse gas emissions.

Embedded mitigation measures to reduce GHG emissions from the construction, operation and decommissioning of the Proposed Development (for example through ensuring efficient and well-maintained construction plant and equipment is used to reduce fuel and energy consumption) will also be set out in the ES and considered within the assessment.

14.6.2 CLIMATE CHANGE RISK ASSESSMENT

Embedded mitigation measures to reduce the impact of climate change on the Proposed Development will be set out in the ES and considered within the assessment. It is likely that these will relate to ensuring work does not take place during extreme weather, and that the design incorporates consideration of future climatic changes (for example, considering the climate change allowances when considering flood risk).

14.6.3 ICCI ASSESSMENT

Mitigation for other environmental topics will be detailed within the relevant ES chapters, and will not be detailed in the Climate Change and Greenhouse Gas Emissions ES chapter.

14.7 SCOPE OF THE ES CHAPTER

Table 14.7 contains a list of all environmental factors relating to climate change and GHG emissions that will be scoped in and scoped out of the assessment.

TABLE 14.7 ENVIRONMENTAL FACTORS TO BE SCOPED IN OR OUT OF THE ASSESSMENT

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
Effects of the Proposed Development on climate change	Scoped In	It is possible that the Proposed Development will have a significant effect on climate change through reducing GHG emissions by renewable energy generation, and therefore a GHG Assessment will be scoped in to the EIA to assess this likely significant effect and align with National Planning Framework policy relating to carbon balance and GHG Emissions.
Effects of climate change on assessments made in other environmental topics of the Proposed Development's ES	Scoped In	This effect cannot be entirely scoped out, as effects of climate change may impact baseline receptors that have been assessed in other ES chapters, thereby affecting their resilience or response to the changes associated with the Proposed Development. Therefore, this will be scoped in to further assessment, although this will be considered within individual technical chapters where relevant rather than within the Climate Change and GHG Emissions ES chapter.
Vulnerabilities and Resilience of the Proposed Development to Climate Change	Scoped In	Out of the general climate change hazards identified it is proposed to scope in consideration of extreme weather events, changes in precipitation, changes in temperature, wind and wildfires into the CCRA as these hazards have the potential to impact the Proposed Development.
	Scoped Out	Consideration of sea level rise and sea temperature rise are scoped out of the EIA as the Site is not anticipated to be impacted by sea level rise, and there is no marine infrastructure included within the Proposed Development.

14.8 CONSULTATION AND SCOPING QUESTIONS

Consultation will be conducted with the following consultees:

- Environment Agency (EA); and
- Northumberland County Council (NCC).

Key questions for consultees are:

- Q14.1 – Are consultees content with the proposed method of assessment for the effect of the Proposed Development on climate change (GHG Assessment)?
- Q14.2 – Are consultees content with the proposed scope and methodology of the CCRA?
- Q14.3 – Are consultees content with the proposed method of assessment for the effects of climate change on environmental effects identified in the other chapters of the ES (the ICCI Assessment)?

15. SOCIO-ECONOMICS, TOURISM AND RECREATION

15.1 INTRODUCTION

This chapter outlines the baseline conditions, likely significant effects of the Proposed Development, and proposed methodology to be undertaken for the socio-economic impact assessment, including the impact pathways that it is proposed to scope in and scope out of further assessment.

The following categories of impacts are relevant to this chapter of the Report:

- Socio-economic impacts (employment and economic output);
- Wider socio-economic effects (economic structure, qualifications, earnings);
- Sociocultural effects (population and demographics, housing and social infrastructure); and
- Tourism and recreation effects.

The assessment will consider the construction, operational and decommissioning phases of the Proposed Development, noting that from a socio-economic perspective, the duration of likely significant effects associated with changes in land use or impacts on PRoW may be both temporary and permanent in nature and will be identified as such. Long-term effects arising during construction that would continue into the operational phase, such as permanent changes in land use, will be assessed as construction effects.

The Study Area for the assessment of socio-economic effects is defined by the location of the Site, the location of receptors that could be directly or indirectly impacted, the type of effects that could occur, and the spatial scale at which effects could arise.

- Socio-economic impacts on jobs and Gross Value Added (GVA) — a measure of economic output — are likely to occur at the local and national economy level. Socio-economic effects are therefore assessed for a Local Study Area comprising Northumberland and a National Study Area of England.
- Wider socio-economic and socio-cultural effects are unlikely to be significant at a national level but may be significant for local communities or at a local authority level. Wider socio-economic and socio-cultural effects are therefore assessed for a Local Study Area comprising Northumberland, and a Neighbourhood Study Area comprising the wards that intersect with the Site boundary (Bellingham, Longhorsley and Rothbury). The Neighbourhood Study Area is shown on **Figure 15.1**.

- Direct effects on Public Rights of Ways (PRoWs) would also occur within the Site, however there could also be the potential for indirect effects on PRoW over a wider area such as effects on amenity arising from a combination of significant noise, visual, traffic, or air quality effects. The assessment therefore considers the land within the Site plus a buffer of 5 km, as it is considered that significant combined effects on amenity would be most likely to arise within this area. While there may be the potential for significant visual effects over a further distance from the Site, it is not expected that significant combined effects on amenity would occur outside of the 5 km buffer. PRoW are shown on **Figure 15.2**.
- Indirect effects for tourism and recreation receptors, such as changes in amenity or disruption to access, are also considered within a 5 km buffer of the Site. The assessment will also consider the potential for wider socio-economic effects on the tourism sector in the Neighbourhood Study Area and Northumberland.

The proposed Study Areas for each category of effect included in the scope are summarised in **Table 15.1.**

TABLE 15.1 SUMMARY OF STUDY AREAS

	Site	Site plus 5km	Neighbourhood Study Area	Local Study Area	National Study Area
Socio-economic				✓	✓
Wider socio-economic			✓	✓	
Socio-cultural			✓	✓	
PRoW, tourism and recreation receptors	✓	✓			

15.2 LEGISLATION, POLICY AND GUIDANCE

This socio-economic assessment will be prepared in accordance with current policy, legislation and good practice guidance as outlined below.

15.2.1 LEGISLATION

There are no legislative requirements which dictate the form of socio-economic assessment. Therefore, the approach and methodology will be informed by

best practice, feedback from stakeholders, planning policy and published guidance.

15.2.2 NATIONAL PLANNING POLICY

15.2.2.1 NATIONAL POLICY STATEMENTS

The energy National Policy Statements (NPSs), EN-1 – EN-6, outline the government's policy for delivering major energy infrastructure. The NPSs that are of relevance to the Proposed Development are:

- Overarching National Policy Statement for Energy (EN-1) (2025)[367];
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (2025)[368]; and
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (2025)[369].

Details of specific policies within EN-1 that are considered relevant to socio economics are set out in **Table 15.2**. EN-3 and EN-5 contain no additional requirements with regard to climate change.

TABLE 15.2 NATIONAL PLANNING POLICY STATEMENTS

NPS Reference	NPS Requirement
EN-1, paragraph 5.13.2	*"Where the project is likely to have socio-economic impacts at local or regional levels, the applicant should undertake and include in their application an assessment of these impacts as part of the ES".*
EN-1, paragraph 5.13.3	*"The applicant is strongly encouraged to engage with relevant local authorities during early stages of project development so that the*

[367] UK Government (2025) Overarching National Policy Statement for Energy (EN-1). Available online at: Overarching National Policy Statement for energy (EN-1), 2025 (accessible webpage) - GOV.UK
[368] UK Government (2025) National Policy Statement for Renewable Energy Infrastructure (EN-3). Available online at: National Policy Statement for Renewable Energy Infrastructure (EN-3)
[369] UK Government (2025) National Policy Statement for Electricity Networks Infrastructure (EN-5). Available online at: National Policy Statement for Electricity Networks Infrastructure (EN-5) – December 2025

NPS Reference	NPS Requirement
	applicant can gain a better understanding of local or regional issues and opportunities."
EN-1, paragraph 5.13.4	*"The applicant's assessment should consider all relevant socio-economic impacts, which may include:* • *The creation of jobs and training opportunities. Applicants may wish to provide information on the sustainability of the jobs created, including where they will help to develop the skills needed for the UK's transition to Net Zero;* • *The contribution to the development of low-carbon industries at the local and regional level as well as nationally;* • *The provision of additional local services and improvements to local infrastructure, including the provision of educational and visitor facilities;* • *Any indirect beneficial impacts for the region hosting the infrastructure, in particular in relation to use of local support services and supply chains;* • *Effects (positive and negative) on tourism and other users of the area impacted;* • *The impact of a changing influx of workers during the different construction, operation and decommissioning phases of the energy infrastructure. This could change the local population*

NPS Reference	NPS Requirement
	dynamics and could alter the demand for services and facilities in the settlements nearest to the construction work (including community facilities and physical infrastructure such as energy, water, transport and waste). There could also be effects on social cohesion depending on how populations and service provision change as a result of the development; and • *Cumulative effects - if development consent were to be granted for a number of projects within a region and these were developed in a similar timeframe, there could be some short-term negative effects, for example a potential shortage of construction workers to meet the needs of other industries and major projects within the region."*
EN-1, paragraph 5.13.5	*"Applicants should describe the existing socio-economic conditions in the areas surrounding the proposed development and should also refer to how the development's socio-economic impacts correlate with local planning policies."*
EN-1, paragraph 5.13.6	*"socio-economic impacts may be linked to other impacts, for example visual impacts considered in Section 5.10 but may also have an impact on tourism and local businesses.*

NPS Reference	NPS Requirement
	Applicants are encouraged, where possible, to demonstrate that local suppliers have been considered in any supply chain."
EN-1, paragraph 5.13.7	*"Applicants should consider developing accommodation strategies where appropriate, especially during construction and decommissioning phases, that would include the need to provide temporary accommodation for construction workers if required."*
EN-1, paragraph 5.13.7	*"The Secretary of State should consider whether mitigation measures are necessary to mitigate any adverse socio-economic impacts of the development. For example, high quality design can improve the visual and environmental experience for visitors and the local community alike."*

15.2.2.2 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and provides a framework for sustainable development planning[370]. The NPPF has three overarching objectives: an economic objective, a social objective, and an environmental objective. The economic objective focuses on building a strong, responsive and competitive economy, including by identifying and coordinating the provision of infrastructure. The social objective focuses on supporting strong, vibrant and healthy communities.

[370] MHCLG (2024) National Planning Policy Framework. Available online at: National Planning Policy Framework

15.2.3 LOCAL PLANNING POLICY

Local planning policy relevant to socio economic matters will be identified and drawn from the Northumberland Local Plan 2016-2036[371]. Key Policies include:

- Policy ECN 1 – Planning strategy for the economy
- Policy ECN 12 – A strategy for rural economic growth
- Policy ECN 15 – Tourism and visitor development
- Policy REN 1 – Renewable and low carbon energy and associated energy storage
- Policy REN 2 – Onshore wind energy development
- Policy TRA 1 – Promoting sustainable connections

The Northumberland National Park Local Plan adopted in 2020[372] key policies include;

- Policy ST2: General Development Principles

15.2.4 GUIDANCE

Relevant guidance includes the following:

- The North East Strategic Economic Plan[373] outlines regional energy as an existing asset but also as a growth opportunity for the region. The plan states that the North East has the potential to be home to the clean energy revolution and create around 46,000 new jobs
- Institute of Sustainability and Environmental Professionals (ISEP) (formerly IEMA), Social Impact Assessment in Environmental Impact Assessment in the UK and Ireland[374], which provides guidance on scoping and assessing

371 Northumberland County Council (2022) Northumberland Local Plan 2016-2036. Available online at: https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Planning-and-Building/planning%20policy/Local%20Plan/Northumberland-Local-Plan-Adopted-March-2022.pdf

372 Northumberland National Park (2020) Northumberland National Park Local Plan. Available online at: https://www.northumberlandnationalpark.org.uk/wp-content/uploads/2020/09/Northumberland-National-Park-Local-Plan-July-2020-.pdf

373 North East LEP (2019) The North East Strategic Economic Plan. Available online at: NNPA-081-North-East-Strategic-Economic-Plan.pdf

374 ISEP (2025) Social Impact Assessment in Environmental Impact Assessment in the UK. Available online at: Social impact assessment in environmental impact assessment in the UK – ISEP shop

social impacts, including developing the baseline, defining appropriate significance criteria, and identifying mitigation.

- HM, Treasury Green Book: UK Government Guidance on Appraisal[375]. Green Book principles have been applied when assessing socio-economic impacts.

15.3 BASELINE CONDITIONS AND KEY SENSITIVITIES

15.3.1.1 DATA SOURCES USED IN SCOPING

The following data sources have been used to inform understanding of the baseline conditions described for population and socio-economic characteristics:

- Office for National Statistics (ONS), Census, 2021[376];
- ONS, Annual Population Survey (APS) 2025[377];
- ONS, Business Register and Employment Survey (BRES) 2024[378];
- ONS, Mid-Year Population Estimates, 2024[379];
- ONS, Subregional Productivity, 2023[380]; and
- UK Government, Index of Multiple Deprivation (IMD) 2025[381].

15.3.1.2 SOCIO-ECONOMIC EFFECTS

The Proposed Development will create jobs and contribute to GVA during the construction, operation and maintenance, and decommissioning phases. These socio-economic effects will be assessed for the Local and National Study Areas and so baseline data is provided for Northumberland and for England.

[375] HM Treasury (2026) The Green Book: UK Government Guidance on Appraisal. Available online at: The Green Book - GOV.UK
[376] ONS (2021) Census. Available online at: https://www.ons.gov.uk/census
[377] ONS (2025) Annual Population Survey. Available online at: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/methodologies/annualpopulationsurveyapsqmi
[378] ONS (2025) Business Register and Employment Survey. Available online at: https://www.ons.gov.uk/surveys/informationforbusinesses/businesssurveys/businessregisterandemploymentsurvey
[379] ONS (2024) Mid-year Population Estimates. Available online at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/populationestimatesforenglandandwales/mid2024
[380] ONS (2025) Subregional Productivity. Available online at: https://www.ons.gov.uk/economy/economicoutputandproductivity/productivitymeasures/bulletins/regionalandsubregionallabourproductivityuk/2023
[381] UK Government (2025) Index of Multiple Deprivation. Available online at: English indices of deprivation 2025: statistical release - GOV.UK

Data from the APS shows that economic activity is below average in Northumberland, with 73.3% of residents aged between 16 and 64 recorded as economically active in the year to December 2025, compared with 79.5% in England. The rates of both employment and unemployment are also below the national average. The underlying data shows higher than average proportions of economically inactive residents who are retired (20.0% compared with 12.2% nationally), and who are long-term sick (31.8% compared with 27.7% nationally).

Productivity levels are below average. GVA per filled job in Northumberland was £51,941 in 2023 (the most recent data available at local authority level), compared with £67,338 for England. Earnings data are broadly consistent with this pattern: median resident earnings (£732.50 per week) and workplace earnings (£692.20 per week) in Northumberland are below the England averages (£769.50 and £770.70 respectively).

Taken together, the data indicates a local labour market with low unemployment, but lower economic activity, and relatively low productivity and earnings when compared with national benchmarks.

15.3.1.3 WIDER SOCIO-ECONOMIC EFFECTS

Wider socio-economic and socio-cultural effects are unlikely to be significant at a national level but may be significant for local communities or at a local authority level. These effects will be assessed for the Neighbourhood and Local Study Areas and so baseline data is provided for the Neighbourhood Study area and for Northumberland.

Data from BRES shows that employment in the Neighbourhood Study Area is characterised by a strong concentration in service-based sectors, alongside notable specialisation in a small number of goods-producing and infrastructure-related activities. Accommodation and food service activities are the dominant source of employment, accounting for 27.1% of all jobs, more than three times the England average (7.6%) and significantly higher than Northumberland (11.0%). This is reflected in a high location quotient of 3.5, indicating a local reliance on tourism- and hospitality-related employment.

Construction also plays an important role locally, representing 7.4% of employment compared with 5.0% nationally, with a location quotient of 1.5 indicating a relative concentration of construction activity. Transport and storage employment is similarly above average at 6.7% (England: 5.1%; LQ 1.3).

In contrast, manufacturing accounts for a relatively small share of employment in the Neighbourhood Study Area (4.9%), below both the England (7.0%) and Northumberland (10.2%) averages, indicating limited local specialisation in this sector. The area also shows above-average concentrations in agriculture and utilities-related activities, reflecting its rural and infrastructure-related characteristics, while higher-value knowledge-intensive sectors remain under-represented.

Overall, the sectoral profile indicates a labour market that is relatively narrow in composition, with a strong reliance on hospitality, construction, transport, agriculture and utilities, and limited representation of manufacturing and higher-productivity service sectors. This structure suggests that construction-phase employment associated with the Proposed Development could align well with existing local skills and employment patterns, although longer-term operational roles may be more constrained by the limited presence of specialist and knowledge-intensive sectors.

15.3.1.4 SOCIO-CULTURAL

Socio-cultural effects, such as effects on the local population and services, will be assessed for the Neighbourhood and Local Study Areas and so baseline data is provided for the Neighbourhood Study area and for Northumberland.

Population and Demographics

The Neighbourhood Study Area has a resident population of approximately 13,300 people and is characterised by a dispersed settlement pattern comprising small towns, villages and rural communities. Settlements closest to the Proposed Development include Bellingham, Otterburn and Kirkwhelpington, with other nearby communities such as West Woodburn, Rothley and Wark. The wider Neighbourhood Study Area also encompasses predominantly rural and coastal wards, with a low-density settlement pattern and few population centres.

The age profile of the Neighbourhood Study Area indicates a markedly older population compared with wider geographies. Residents aged 65 and over account for 34.1% of the population, substantially higher than in Northumberland (26.6%) and England as a whole (18.7%). Correspondingly, the working-age population (16–64) represents just 53.3% of residents, compared with 57.7% in Northumberland and 62.9% nationally.

Given the modest size of the resident population, its dispersed nature and the relatively high proportion of older residents, the Proposed Development has the potential to generate a substantial number of jobs relative to the local

workforce, particularly during the construction phase. As a result, a significant proportion of construction workers are likely to be drawn from outside the Neighbourhood Study Area, potentially including the wider regional labour markets.

This may result in temporary in-migration of workers, increased demand for short-term accommodation within nearby settlements such as Bellingham and surrounding rural communities, and short-term changes to local population dynamics. These effects could give rise to temporary socio-cultural impacts during the construction phase, particularly in smaller communities with limited existing accommodation and services, although such effects would be time-limited and reversible following completion of construction.

15.3.2 DEPRIVATION

The IMD is the official measure of relative deprivation for small areas in England[382]. Deprivation is measured at Local Super Output Area (LSOA)[383] level across seven 'domains'. These are: income, employment, education, health, crime, barriers to housing/services, and living environment. These are combined and weighted to create the overall IMD.

IMD data at local authority level shows that Northumberland ranks in the 50% most deprived local authority districts in England[384], and is one of the top 20 most deprived rural areas nationally[385]. At neighbourhood level, **Figure 15.3** shows that LSOAs within the Neighbourhood Study Area are within the 40% most deprived in England. The underlying data suggests that this is driven by high levels of deprivation in the barriers to housing and services domain (which measures the physical and financial accessibility of housing and local services),

[382] ONS (2025) English indices of deprivation 2025. Available online at: English indices of deprivation 2025: statistical release - GOV.UK
[383] An LSOA is a statistical unit used by the ONS that typically comprises between 1,000 and 3,000 residents or between 400 and 1,200 households. Further information is available at: Statistical geographies - Office for National Statistics
[384] MHCLG (2025) English indices of deprivation 2025. Available online at: Overall (IMD) | Local Deprivation Explorer
[385] MHCLG (2025) English indices of deprivation 2025: statistical release. Available online at: English indices of deprivation 2025: statistical release - GOV.UK

and the living environment domain (which measures the quality of the indoor and outdoor local environment)[386].

Housing

Given the potential for the Proposed Development to require construction workers from outside of the Neighbourhood and Local Study Areas, particularly during construction, the assessment will consider the potential for likely significant effects on the local housing and rental market.

Census (2021[387]) data indicate that levels of home ownership are higher in both the Neighbourhood Study Area and the Local Study Area than nationally. Owner-occupation accounts for 67.7% of households in the Neighbourhood Study Area, compared with 65.2% in the Local Study Area, exceeding the England average of 61.3%.

The proportion of households living in socially rented accommodation is relatively low in the Neighbourhood Study Area, at 11.6% which is notably lower than both the Local Study Area (17.8%) and England as a whole (17.1%). This indicates a lower reliance on social housing within the Neighbourhood Study Area, alongside a housing stock that is predominantly owner-occupied.

Average house prices[388] across the Local Study Area remain below the national average. In December 2025, the average house price was £215,000 in Northumberland, compared with £270,000 across the UK. Private rental costs show a similar pattern, with average monthly rents of £661 in the Local Study Area in January 2026, substantially lower than the UK average of £1,367.

The local housing market appears relatively affordable compared with national data. Combined with higher rates of home ownership and lower reliance on social renting, this suggests a comparatively accessible and less pressured housing market in the area.

Transport Links and Public Rights of Way

The Proposed Order Limits are crossed by, and lie in the vicinity of, several Public Rights of Way (PRoW), including footpaths and bridleways, which

[386] ONS (2025) English indices of deprivation 2025: statistical release. Available online at: English indices of deprivation 2025: statistical release - GOV.UK
[387] ONS (2021) Census – tenure. Available online at: https://www.ons.gov.uk/datasets/TS054/editions/2021/versions/1
[388] ONS (2026) Housing Prices. Available online at: Housing prices in Northumberland

provide local informal recreational access. These routes form part of the wider local PRoW network and are used primarily by walkers, cyclists and equestrians. At this stage, information relating to PRoW has been derived from desk-based mapping and is indicative only.

The presence of PRoW and other access routes within and close to the Proposed Order Limits is recognised as relevant to socio-economic considerations, particularly in relation to local accessibility and recreational use. Further detail on the PRoW network relevant to traffic and transport effects is provided in **Chapter 12: Access, Traffic and Transport**. Further detail on likely significant effects on visual amenity experienced by PRoW users is provided in **Chapter 6: Landscape and Visual**.

15.3.3 TOURISM AND RECREATION

The tourism market in Northumbria represents a significant and established component of the local economy, driven primarily by domestic visitors. Northumberland's tourism sector has seen strong growth recently, reaching post-COVID recovery a year ahead of initial forecasts[389]. According to a report on Northumberland tourism data[390], Northumberland attracted approximately 10.46 million visitors in 2024, comprising around 1.863 million overnight visitors staying for over 7.8 million nights, alongside a much larger volume of day visitors. Tourism activity generated an estimated £1.443bn in total economic impact in 2024, supporting approximately 11,594 direct jobs and over 14,545 jobs in total when indirect effects are included.

Visitor expenditure is concentrated in food and drink, accommodation, and retail, which together account for the majority of tourism-related spend and employment, reflecting the importance of hospitality and service sectors to the local economy. The market is strongly seasonal, with peak visitor numbers and employment occurring in the spring and summer months, consistent with Northumbria's offer of coastal, landscape and heritage attractions.

15.4 POTENTIAL IMPACTS AND LIKELY SIGNIFICANT EFFECTS

The Proposed Development has the potential to create both positive and negative socio-economic and tourism effects at local and national levels.

[389] Northumberland County Council (2025) Northumberland welcomes record visitor spend in 2024. Available online at: Northumberland welcomes record visitor spend in 2024 | Northumberland County Council

[390] Visit Northumberland (2025) Volume and value. Available online at: Volume and value - Visit Northumberland Local Visitor Economy Partnership (LVEP)

Construction

The aspects of the Proposed Development which may have likely significant effects on socio-economic conditions during construction include:

- CAPEX spend within the local and national economy;
- Presence of a temporary incoming construction workforce;
- Temporary and permanent requirements for land within the Proposed Order Limits;
- Temporary impacts on PRoW; and
- Temporary environmental impacts associated with construction, including noise, traffic, and changes in the visual environment.

Operational Phase

The aspects of the Proposed Development with likely significant effects on socio-economic conditions during construction include:

- OPEX spend within the local and national economy.

Decommissioning

Aspects of the decommissioning phase, including likely decommissioning expenditure, are currently unknown. It is anticipated that decommissioning activity would be generally the reverse of the construction sequence. In general, it is assumed that the environmental effects from decommissioning will be no greater in magnitude than those that occur during construction.

Construction and decommissioning

It is proposed that the following likely significant effects are scoped in for assessment during the construction and decommissioning phases:

- Employment effects. The construction and decommissioning of the Proposed Development will create jobs directly and in the supply chain which could have the potential for a likely significant effect within the local labour market.
- GVA effects. The construction and decommissioning of the Proposed Development will generate GVA in the local and national economy which could have the potential for likely significant effect within the local economy.
- Wider socio-economic effects. The wider and knock-on socio-economic effects including potential structural economic change, loss, or disruption to traditional or established local industries. For example, the tourism industry will be specifically considered in the assessment.

- Socio-cultural effects. Changes to local demographics and the local environment associated with construction activity and the presence of an incoming construction workforce could result in direct and indirect effects on social infrastructure (including PRoW), increased demand for social infrastructure such as housing, and changes in community identity and way of life. This could have the potential for likely significant effects for local communities.
- Tourism and recreation effects. The effects on the tourism economy as a receptor is considered under wider socio-economic effects, noted above. However, local recreation receptors are an asset for both communities and visitors. Therefore, the assessment considers the potential for both direct and indirect effects on tourism and recreation receptors, considering their role in both community recreation activity and wider tourism.

There are no impact pathways that are proposed to be scoped out for assessment during construction and decommissioning.

Operation

It is proposed that the following likely significant effects are scoped in for further assessment during the operational phase:

- Employment effects. The operation of the Proposed Development will create jobs directly and in the supply chain which could have the potential for likely significant effect within the local labour market;
- GVA effects. The operation of the Proposed Development will generate GVA which could have the potential for likely significant effect within the local economy; and
- Indirect effects for users of PRoW, tourism or social infrastructure. There could be effects associated with effects on amenity for PRoW users, that would be distinct from the effects that could arise during construction.

It is proposed that the following impact pathways are scoped out for further assessment during the operational phase:

- Wider socio-economic effects. Operational employment is expected to be relatively small and unlikely to result in significant knock-on effects for other sectors of the local economy, including tourism.
- Socio-cultural effects. Operational employment is unlikely to result in significant changes to local demographics, demand for services, or pressure on social infrastructure, including housing.
- Direct impacts on PRoW, tourism or social infrastructure. It is not expected that any new, direct impacts on PRoW, tourism receptors or social

infrastructure would arise during operation. Any long-term effects arising during construction and continuing into operation will be assessed as construction effects

15.5 ASSESSMENT METHODOLOGY

15.5.1 PROPOSED APPROACH TO THE ASSESSMENT

The assessment will follow the ISEP guidance on Social Impact Assessment for EIA in the UK and Ireland, as well as professional judgement and established industry best practice. Appropriate sensitivity and magnitude criteria will be determined and applied to assess the significance of effects.

This section describes the methodology that will be used to assess each category of effect.

Socio-economic impacts

An economic model will be built to estimate the full-time equivalent (FTE) jobs and GVA associated with the construction and operation and maintenance phases of the Proposed Development. The model will be based on the estimated capital expenditure (CAPEX) and operational expenditure (OPEX) for the Proposed Development and will apply industry standard best practice to estimate the direct, indirect, and induced effects of construction and operation on the local (Northumberland) and national (England) economy.

Wider socio-economic effects

Wider socio-economic effects, such as structural economic change or disruption to established local industries, will be assessed based on the findings of the economic assessment. It will also take into account baseline data in relation to the structure of the local economy, and its existing strengths and growth areas, including transport, construction and manufacturing and tourism. The assessment of effects on the tourism sector will include direct and indirect impacts on tourism receptors, and changes in demand for tourism accommodation associated with an incoming construction workforce.

Direct impacts on tourism receptors will be considered for receptors within the Project Boundary, and indirect impacts will be considered for receptors within a 1km buffer of the Project Boundary. The assessment will draw on the findings of other relevant assessments including Noise, Traffic and Transport, and Landscape and Visual, and will consider where there are likely significant effects identified by these topics to result in combined effects on amenity for users of tourism receptors.

Socio-cultural effects

The assessment of socio-cultural effects will consider the likely significant effects on local demographics associated with an incoming construction workforce, and the effect on local service provision and availability from any increase in demand. The assessment will be qualitative and will take into account the size of the estimated workforce and baseline data relating to the population profile and existing service provision.

The assessment will also consider potential direct and indirect impacts on social infrastructure, including community assets and PRoW, based on the design of the Proposed Development and the findings of other relevant assessments including Noise, Traffic and Transport, and Landscape and Visual. It will assess the potential for likely significant effects reported in these chapters to result in combined effects on amenity for users of PRoW and other social infrastructure within 1 km of the Site.

Cumulative effects

The potential cumulative effects of the Proposed Development in combination with other developments identified within a defined Zone of Influence that could overlap temporally with the construction, operation, or decommissioning phase will be assessed on a qualitative basis, drawing on information available at the time of writing regarding the likely significant effects of the other developments screened into the assessment.

Socio-economic Receptor Sensitivity

The sensitivity of receptors is typically determined by the following factors, as set out in the ISEP guidance on social impact assessment[391]:

- A receptor's social, economic, or environmental value, as recognised in relevant local, regional or national policy;
- Its resilience and capacity to absorb change without fundamentally altering its characteristics;
- Its scarcity value, or the availability of suitable alternative resources; and
- Community dependency on a resource, receptor, or receiving environment.

[391] ISEP (2025) Social Impact Assessment in Environmental Impact Assessment in the UK. Available online at: Social impact assessment in environmental impact assessment in the UK – ISEP shop

Sensitivity criteria for this assessment have been defined, based on the ISEP guidance and on professional judgement. These are set out in **Table 15.3.**

TABLE 15.3: SOCIO-ECONOMIC RECEPTOR SENSITIVITY

Sensitivity	Description
High	The receptor is of international or national importance. The receptor has little or no ability to absorb change or recover/adapt. There is no or low availability of labour and skills in the local authority area workforce, for example as a result of very low unemployment rates. There are no suitable alternative resources available within the relevant Study Area. The receptor is solely used by sensitive groups such as older people, children, and people of poor health.
Medium	The receptor is of regional or local importance. The receptor has a moderate ability to absorb change or recover/adapt. There is a constrained supply of labour and skills and the Proposed Development may lead to temporary labour market pressure. There is limited availability of alternative resources. Receptor is principally, but not exclusively, used by sensitive groups such as older people, children and people of poor health.
Low	Receptor is of local importance. Receptor has ability to absorb change or recover/adapt. There is a readily available labour force with some skill deficits, Proposed Development is unlikely to lead to labour market pressure or distortion. There are alternative resources available.

Sensitivity	Description
	The receptor may be used by sensitive groups such as older people, children, and people of poor health.
Negligible	Any effect would be discernible in the context of the number of jobs created or lost, within the local authority area and the capacity of that area to accommodate the change. Receptor is of local importance and has a high capacity to absorb change and/or recover or adapt. Numerous suitable alternative resources available. Receptor is not specifically used by sensitive groups such as older people, children, and people of poor health.

Magnitude of Impacts

Magnitude of impact is typically determined by the following factors, as set out in the ISEP guidance on social impact assessment:

- The size of the impact based on anticipated change versus the baseline;
- The scale or extent of the impact;
- The duration of the impact;
- The frequency of the impact, if relevant; and
- The reversibility of the impact, and whether it would be temporary or permanent.

Magnitude criteria for this assessment have been defined based on the ISEP guidance and professional judgement, and are set out in **Table 15.4** below.

TABLE 15.4: MAGNITUDE OF IMPACT (ADVERSE AND POSITIVE)

Impact Magnitude	Description
High	Total loss or major alteration (positive or adverse) of a socio-economic receptor. This could include permanent closure or severe effect upon the viability of a business, community facility or public service, or closure or restricted access to PRoW.

Impact Magnitude	Description
Medium	Loss of, or alteration to (positive or adverse), one or more key elements of a socio-economic receptor's baseline value. This could include a moderate change to business revenues with potential job losses but no threat to the viability of the business, moderate change to the function or service of community facilities and public services, or a moderate reduction in access to recreational PRoW.
Low	Slight alteration (positive or adverse) of the socio-economic receptor's baseline value. This could include a low change to business revenues with isolated job losses but no threat to the viability of the business, low change to the function or service of community facilities and public services, or low reduction in access to recreational PRoW.
Negligible	Very little change from baseline conditions. Change barely distinguishable, approximating to a 'no change' situation.

15.5.2 SIGNIFICANCE OF EFFECTS

The level of significance is determined by the sensitivity of the receptor and magnitude of the impacts upon them (see **Table 15.5**). For the purposes of the assessment and the EIA Regulations, 'significant effects' are those identified as being moderate or major (adverse or beneficial). Minor and negligible effects are not considered to be 'significant'.

TABLE 15.5: SIGNIFICANCE OF EFFECT

		Sensitivity of Receptors			
		High	Medium	Low	Negligible
Magnitude of Impact	**High**	Major	Major	Moderate	Minor
	Medium	Major	Moderate	Minor	Negligible
	Low	Moderate	Minor	Negligible	Negligible
	Negligible	Minor	Negligible	Negligible	Negligible

Effects can be defined as:

- Beneficial – advantageous or beneficial on an impact area/defined receptors;
- Negligible – imperceptible/no effect on an impact area/defined receptors; and
- Adverse – disadvantageous or negative effect on an impact area/defined receptors.

15.6 MITIGATION

The assessment will consider the need for any additional measures to mitigate any significant adverse effects, and to support the delivery of any positive effects.

15.7 SCOPE OF THE ES CHAPTER

Table 15.6 contains a list of all environmental factors relating to ecology that will be scoped in or out of the assessment.

TABLE 15.6: ENVIRONMENTAL FACTORS TO BE SCOPED IN OR OUT OF THE ASSESSMENT

Environmental Receptor, Assessment or Effect	***Scoped In/Out***	**Rationale**
Employment effects during construction and decommissioning	Scoped in	The construction and decommissioning of the Proposed Development will create jobs directly and in the supply chain, which could have the potential for likely significant effects within the local labour market.
Employment effects during operation	Scoped in	The operation of the Proposed Development will create jobs directly and in the supply chain. These effects will be assessed, although operational employment levels are expected to be relatively small.
GVA effects during construction and decommissioning	Scoped in	The construction and decommissioning of the Proposed Development will generate Gross Value Added (GVA) in the local and national economy, which could have the potential for likely significant effect within the local economy.
GVA effects during operation	Scoped in	Operational expenditure associated with the Proposed Development will generate GVA, with the potential for likely significant effect within the local economy.

Environmental Receptor, Assessment or Effect	***Scoped In/Out***	**Rationale**
Wider socio-economic effects during construction and decommissioning	Scoped in	Wider and knock-on socio-economic effects, including potential structural economic change, loss or disruption to established local industries (including tourism), have the potential to result in likely significant effects during construction and require assessment.
Wider socio-economic effects during operation	Scoped out	Operational employment is expected to be relatively small and unlikely to result in significant knock-on effects for other sectors of the local economy, including tourism.
Socio-cultural effects during construction and decommissioning	Scoped in	Changes to local demographics and the local environment associated with construction activity and the presence of an incoming construction workforce could result in effects on social infrastructure, increased demand for services, and changes in community identity and way of life.
Socio-cultural effects during operation	Scoped out	Operational employment is unlikely to result in significant changes to local demographics, demand for services, or pressure on social infrastructure.

Environmental Receptor, Assessment or Effect	***Scoped In/Out***	**Rationale**
Direct impacts on PRoW, tourism or social infrastructure during construction and decommissioning	Scoped in	There is the potential that the construction and decommissioning of the Proposed Development could require temporary diversions to PRoW, or could result in disruption to users of PRoW and other tourism receptors or social infrastructure.
Direct impacts on PRoW, tourism or social infrastructure during operation	Scoped out	It is not expected that any new, direct impacts on PRoW, tourism receptors or social infrastructure would arise during operation. Any long-term effects arising during construction and continuing into operation will be assessed as construction effects.
Indirect impacts on PRoW, tourism or social infrastructure during construction and decommissioning	Scoped in	There is the potential for the construction and decommissioning of the Proposed Development to result in indirect effects on PRoW, tourism receptors or social infrastructure such as effects on amenity arising from a combination of noise, visual, traffic, or air quality impacts.
Indirect impacts on PRoW, tourism or social infrastructure during operation	Scoped in	There is the potential that the operational phase of the Proposed Development could result in indirect effects on PRoW, tourism receptors or social infrastructure

Environmental Receptor, Assessment or Effect	***Scoped In/Out***	**Rationale**
		such as effects on amenity arising from a combination of noise and visual effects.
Housing and accommodation effects during construction	Scoped in	A proportion of the construction workforce is likely to be drawn from outside the Neighbourhood Study Area, which may result in increased demand for short-term accommodation and housing within nearby settlements.
Housing and accommodation effects during operation	Scoped out	Operational employment levels are expected to be relatively small and are unlikely to result in significant in-migration or increased demand for housing or accommodation. As such, no significant effects on the local housing or rental market are anticipated during the operational phase.

15.8 CONSULTATION AND SCOPING QUESTIONS

Consultation will be conducted with the following consultees:

- Northumberland County Council.

Key questions for consultees are:

- Q15.1 - Are consultees content with the proposed methodology and scope of the Socio-economic, Tourism and Recreation assessment?
- Q15.2 – Are consultees content with the proposed tourism and recreation receptors identified in the baseline?
- Q15.3 - Are consultees aware of any relevant policies or guidance documents not specifically mentioned in this chapter of the Report?

16. OTHER ISSUES

16.1 INTRODUCTION

This chapter outlines the potential implications of the Proposed Development on other issues relating to the environment. This chapter includes discussion of the following:

- Telecommunications and Utilities;
- Aviation;
- Shadow Flicker;
- Human Health;
- Major Accidents and Disasters;
- Air Quality; and
- Intra-project cumulative effects.

16.2 TELECOMMUNICATIONS AND UTILITIES

This section outlines the potential for the Proposed Development to interact with telecommunications systems and utilities infrastructure. Wind turbines can, in principle, interfere with radio-based telecommunications services through:

- The blocking of radio signals; and/or
- The reflection of radio signals.

These mechanisms are relevant to point-to-point fixed link infrastructure which operate using radio frequency signals.

The grid connection infrastructure is a static and relatively narrow feature and therefore has limited potential for such interactions; as such, the telecommunications scoping assessment within this Report will primarily focus on the wind turbines.

In addition to telecommunications, the EIA will include a high-level review of utilities infrastructure (water, gas and electricity).

16.2.1 LEGISLATION, POLICY AND GUIDANCE

There is no single legislative or planning policy document that sets out a formal methodology for assessing telecommunications effects from wind farms or grid connections. However, several guidance sources and industry standards inform best practice, including:

- Ofcom Spectrum Information System (SIS)[392]
- Ofcom Guidance on Fixed Wireless Links[393]
- Joint Radio Company (JRC) guidance on UHF telemetry clearance zones[394]

There is no specific industry guidance for assessing potential interactions with utilities infrastructure; however, standard practice for wind farm and grid connection projects includes consultation with relevant utilities providers to identify any safeguarding requirements.

16.2.2 BASELINE CONDITIONS AND KEY SENSITIVITIES

An initial telecommunications assessment undertaken by Pager Power (August 2025) identified several safeguarded fixed radio links within consultation range of the Site. These include links operated by:

- Airwave;
- BT;
- JRC;
- Mobile Broadband Network Limited (MBNL); and
- Virgin Media O2.

These operators represent the key telecommunications sensitivities for the Proposed Development.

An updated review of the telecommunications infrastructure present in the area will be completed during the EIA process.

A review of utilities infrastructure (including water, gas and electricity services) within and surrounding the Scoping Boundary will also be undertaken as part of the EIA baseline process.

16.2.3 POTENTIAL IMPACTS AND LIKELY SIGNIFICANT EFFECTS

Wind turbines have the potential to interact with electromagnetic signals, which may affect fixed point-to-point telecommunications links, and other radio-based services during both construction and operation.

[392] Ofcom (2026) Spectrum Information System (SIS). Available online at: https://www.ofcom.org.uk/spectrum/frequencies/spectrum-information-system-sis
[393] Ofcom (2026) Fixed Terrestrial Links. Available online at: https://www.ofcom.org.uk/spectrum/radio-equipment/fixed-terrestrial-links
[394] Joint Radio Company (JRC) (2014) Calculation of Wind Turbine Clearance Zones for JRC Ultra High Frequency (460 MHz) Telemetry Systems When Turbine Sizes and Locations Are Accurately Known – Issue 4.2.

In addition to the wind turbines, the Proposed Development also includes the grid connection to an existing substation, as well as a proposed BESS. These components comprise static electrical infrastructure with no moving elements and therefore have minimal potential to interfere with telecommunications signals. As such, the telecommunications assessment will focus primarily on the wind turbines.

The Proposed Development has the potential to interact physically with existing underground and above-ground utilities during construction of access tracks, foundations and grid connection infrastructure. These interactions are typically design-led, and any identified utilities constraints will be managed through avoidance, protection measures or minor route adjustments where required.

Initial desk-based work has identified safeguarded telecommunications assets within consultation range of the Site. The detailed assessment will consider whether any turbine locations have the potential to interact with these assets and, where necessary, identify mitigation through design refinement and engagement with operators.

Decommissioning-phase effects are expected to be no greater than construction-phase effects and will be addressed through the Decommissioning Plan so will be **scoped out** of the EIA.

16.2.4 ASSESSMENT METHODOLOGY

The telecommunications assessment will follow recognised industry guidance, including Ofcom and JRC methodologies listed in **Section 16.2.1**.

Further desk-based review and consultation exercises will be carried out to identify any existing telecommunications infrastructure within or near the Proposed Development. This will include engagement with relevant telecommunications operators (such as Airwave, Arqiva, British Telecom, Mobile Broadband Network Limited, MLL Telecom, the Joint Radio Company, Virgin Media O2 and Vodafone; noting that Ofcom no longer responds to link-safeguarding consultations).

For utilities, consultation will also be undertaken with the relevant statutory undertakers (including water, gas and electricity providers) alongside a desk-based search of available asset plans to identify any infrastructure requiring protection or avoidance.

No field surveys are proposed, as operator consultation and desktop review represent the most reliable approach. Identified safeguarding constraints will inform subsequent layout refinement.

Information gathered through consultation will be used to inform future layout refinement and ensure that any safeguarding requirements are incorporated into the design.

16.2.5 MITIGATION

Should the detailed assessment identify any safeguarding constraints, these will be addressed through design refinement in consultation with the relevant operators. Mitigation may include micro-siting of turbines or operator-led technical solutions such as re-networking or leased line replacement, where appropriate.

Ongoing consultation with telecommunications operators, including that already initiated by Pager Power, will ensure that any potential constraints are identified early within the iterative design process. All consultation will be documented in the project consultation log, and any design changes will be recorded within the ES.

Any utilities infrastructure identified during consultation will be protected through appropriate construction-phase measures or minor design adjustments where required. All engagement with utilities providers will be documented in the project consultation log.

16.2.6 SCOPE OF THE ES CHAPTER

Telecommunications will be **scoped in** to the EIA, as safeguarded fixed links have been identified within consultation range and further detailed assessment is required. If subsequent design refinement confirms that all safeguarding requirements are fully accommodated, with confirmation through consultation with the appropriate consultees, the scope may be revisited prior to ES submission.

Utilities will be **scoped out** of the EIA, as any interactions with existing water, gas or electricity infrastructure are expected to be fully addressed through standard design avoidance and construction-phase controls, informed by desk-based asset searches and consultation with statutory undertakers.

16.3 AVIATION

This section outlines the potential for the Proposed Development to interact with civil and military aviation interests. Wind turbines can, in principle, affect aviation operations by presenting physical obstacles to aircraft, generating returns on primary radar, or affecting Communications, Navigation and Surveillance (CNS) systems. These considerations apply to both civil and military airspace users.

16.3.1 LEGISLATION, POLICY AND GUIDANCE

The assessment will be undertaken in accordance with relevant Civil Aviation Authority (CAA), Ministry of Defence (MoD) and National Air Traffic Services (NATS) safeguarding legislation and policy.

16.3.1.1 LEGISLATION

Relevant legislation that will be considered includes:

- Ministry of Defence Regulatory Article (RA) 2330 (Low Flying)[395];
- NATS Safeguarding Maps and Technical Guidance[396];
- Air Navigation Order (ANO) 2016 (Articles 222[397] and 225A[398]); and
- Town and Country Planning (Safeguarded Aerodromes, Technical Sites and Military Explosives Storage Areas) Direction 2002[399];

16.3.1.2 NATIONAL PLANNING POLICY

National Planning Policy Statements

The energy National Policy Statements (NPSs), EN-1 – EN-6, outline the government's policy for delivering major energy infrastructure. The NPSs that are of relevance to the Proposed Development are:

- Overarching National Policy Statement for Energy (EN-1)[400] (2025);

[395] UK Ministry of Defence (2022) Regulatory Article RA 2330: Low Flying. Available online at: https://www.gov.uk/government/publications/regulatory-article-ra-2330-low-flying
[396] NATS (2026) NATS Air Traffic Services Information. Available online at: https://www.nats.aero/
[397] UK Government (2016) The Air Navigation Order 2016, Article 222. Available online at: https://www.legislation.gov.uk/uksi/2016/765/article/222
[398] UK Government (2016) The Air Navigation Order 2016, Article 225A. Available online at: https://www.legislation.gov.uk/uksi/2016/765/article/225A
[399] UK Government (2002) Town and Country Planning (Safeguarded aerodromes, technical sites and military explosives storage areas) direction 2002. Available online at: https://www.gov.uk/government/publications/safeguarding-aerodromes-technical-sites-and-military-explosives-storage-areas/the-town-and-country-planning-safeguarded-aerodromes-technical-sites-and-military-explosives-storage-areas-direction-2002
[400] Department for Energy Security & Net Zero (2025) Overarching National Policy Statement for Energy (EN-1). Available online at: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1-2025/overarching-national-policy-statement-for-energy-en-1-2025-accessible-webpage

- National Policy Statement for Renewable Energy Infrastructure (EN-3) (2025)[401]; and
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (2025)[402].

Details of specific policies within EN-1 that are considered relevant to aviation are set out in **Table 16.1** below. EN-3 and EN-5 contain no additional requirements with regard to aviation.

TABLE 16.1 NATIONAL PLANNING POLICY STATEMENTS

NPS Reference	NPS Requirement
EN-1, paragraph 5.5.40	*"The applicant should consult the MOD, Met Office, Civil Aviation Authority (CAA), NATS and any aerodrome – licensed or otherwise – likely to be affected by the proposed development in preparing an assessment of the proposal on aviation, meteorological or other defence interests."*
EN-1, paragraph 5.5.41	*"Any assessment of effects on aviation, meteorological or other defence interests should include potential impacts of the project upon the operation of CNS infrastructure, Instrument Flight Procedures, flight patterns (both civil and military), generation of weather warnings and forecasts, other defence assets (including radar) and aerodrome operational procedures. It should also assess the demonstratable cumulative effects of the project with other relevant projects in relation to aviation, meteorological and defence."*

[401] Department for Energy Security & Net Zero (2025) National Policy Statement for renewable energy infrastructure (EN-3). Available online at: https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3-2025/national-policy-statement-for-renewable-energy-infrastructure-en-3-2025-accessible-webpage

[402] UK Government (2025) National Policy Statement for electricity networks infrastructure (EN-5). Available online at: https://assets.publishing.service.gov.uk/media/64252f852fa848000cec0f53/NPS_EN-5.pdf

NPS Reference	NPS Requirement
EN-1, paragraph 5.5.42	"In addition, consideration of developments near aerodromes should take into account the following factors: • Bird Strike Risk – Aircraft are vulnerable to wildlife strike, in particular bird strike. Birds and other wildlife may be attracted to the vicinity of an aerodrome by various types of development, for example, large buildings with perching/roosting opportunities for birds. It is therefore important that infrastructure, buildings and other elements from energy installations, as well as environmental mitigation and enhancement are designed in such a way so as not to increase the bird strike risk to the airport for developments within 13km (this can vary). • Building Induced Turbulence – If a significant building or structure is proposed close to the airport/runways, there is potential for building induced turbulence/wind shear to be created which has the potential to impact on aircraft on take-off and landing. Studies may be required to identify the extent of any turbulence resulting from the energy infrastructure. • Thermal Plume Turbulence – This is caused under certain conditions by the release of hot air from a power plant equipped with a dry cooling system. The plumes generated by these facilities have the potential to create invisible turbulence that can affect the manoeuvrability of aircraft."
EN-1, paragraph 5.5.43	"In addition, consideration of development near communication, navigation, and surveillance (CNS) infrastructure should take into account statutory technical safeguarding zones defined in accordance with Planning Circular 01/03, or any successor, and the potential for energy

NPS Reference	NPS Requirement
	development, and/or its supporting infrastructure, to produce electro-magnetic and electrical noise interference which may degrade the capability or operation of defence CNS infrastructure."

16.3.1.3 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

There are no specific parts to the NPPF that need to be considered for wind development and aviation.

16.3.1.4 LOCAL PLANNING POLICY

Local planning policy relevant to aviation will be identified and drawn from the Northumberland Local Plan 2016-2036. Key Policies include:

- Policy REN 1 Renewable and low carbon energy and associated energy storage.

No policies are relevant from the Northumberland National Park Local Plan (2020).

16.3.1.5 GUIDANCE

- CAA CAP 764 – Policy and Guidelines on Wind Turbines[403];
- CAA CAP 493 – Manual of Air Traffic Services (MATS) Part 1[404];
- CAA CAP 670 – Air Traffic Services Safety Requirements[405]; and
- CAA Policy Statement – Lighting of Onshore Wind Turbines ≥150 m AGL[406].

[403] CAA (2025) CAP 764: Policy and Guidelines on Wind Turbines. Available online at: https://www.caa.co.uk/data-and-publications/publications/documents/content/cap-764/
[404] CAA (2023) CAP 493: Manual of Air Traffic Services Part 1. Available online at: https://www.caa.co.uk/cap493
[405] CAA (2019) CAP 670: Air Traffic Services Safety Requirements. Available online at: https://www.caa.co.uk/cap670
[406] CAA (2023) Policy Statement: Lighting of Onshore Wind Turbines of 150 m Above Ground Level and Taller. Available online at: https://www.caa.co.uk

16.3.2 BASELINE CONDITIONS AND KEY SENSITIVITIES

Several relevant aviation receptors within consultation range of the Site have been identified, including:

- Ministry of Defence (MoD) surveillance and threat radar positions;
- Spadeadam Air Traffic Control (ATC) radar;
- Newcastle Airport Thales and Terma radar; and
- National Air Traffic Services (NATS) en-route radar at Great Dun Fell and Lowther Hill.

The Site also lies within military Low Flying Areas (LFA 12 and LFA 20T) and is located close to the Otterburn and Ridsdale Danger Areas. The presence of military Low Flying Areas (LFA 12 and LFA 20T), together with the proximity of the Otterburn and Ridsdale Danger Areas, represent the key aviation sensitivities relevant to the Proposed Development.

16.3.3 POTENTIAL IMPACTS AND LIKELY SIGNIFICANT EFFECTS

Wind turbines may affect aviation receptors by causing unwanted radar returns (clutter), reducing radar detectability of real aircraft, or presenting physical obstacles for aircraft operating under visual or instrument flight rules.

An initial assessment indicates that turbines are likely to be detectable by the Spadeadam ATC radar, Newcastle Airport radar and the NATS Great Dun Fell radar, and that technical mitigation will be required to maintain normal radar performance. No significant impacts are predicted for RRH Brizlee Wood or NATS Lowther Hill, and no infringements of published Instrument Flight Procedures (IFPs) are expected.

During construction and decommissioning, temporary aviation effects may arise from crane usage and the presence of other tall, temporary structures. These activities will be managed through standard aviation controls, including prior notification to the relevant aviation stakeholders, implementation of appropriate lighting and marking, and compliance with CAA and MoD requirements.

Potential impacts on military low flying and helicopter operations will be addressed through standard lighting and charting requirements. Any impacts identified during further assessment will be managed through design refinement and engagement with relevant aviation stakeholders.

16.3.4 ASSESSMENT METHODOLOGY

The proposed aviation assessment will be in accordance with relevant CAA and MoD safeguarding guidance listed in **Section 16.3.1**.

Further desk-based review and consultation will be undertaken with the MoD, NATS, Newcastle Airport and the CAA to confirm safeguarding requirements. Information gathered will inform ongoing design development and ensure that necessary mitigation is incorporated prior to finalising the layout.

16.3.5 MITIGATION

The Proposed Development will be designed to seek to ensure there are no unacceptable impacts on civil or military aviation interests. Pager Power's initial assessment suggests:

- Spadeadam ATC radar – likely mitigation may include radar blanking;
- Newcastle Airport radar – likely mitigation through the Terma Scanter 4002 'micro-blanking' capability;
- NATS Great Dun Fell radar – likely mitigation via radar in-fill using Lowther Hill

Turbines will be fitted with aviation lighting in accordance with CAA and MoD requirements, including visible obstruction lighting and, where requested, MoD-accredited infrared lighting. Final turbine coordinates and heights will be supplied for aeronautical charting. Any design changes arising from aviation constraints will be documented within the ES.

16.3.6 SCOPE OF THE ES CHAPTER

Aviation is proposed to be **scoped in** to the EIA. The ES Aviation Chapter will assess:

- Effects on civil and military radar infrastructure;
- Effects on military low flying;
- Effects on civil and military aircraft operating under VFR and IFR;
- Effects on helicopter operations; and
- Any required technical mitigation agreed through consultation.

Topics with no identified impact pathways, such as meteorological radar and aerodromes, are proposed to be **scoped out**. A summary of scoped in and scoped out factors is presented in **Section 7.10.**

16.4 SHADOW FLICKER

This section identifies the key baseline conditions, receptors, sensitivities and potential impacts and likely significant effects of relevance associated with shadow flicker from the Proposed Development.

16.4.1 LEGISLATION, POLICY AND GUIDANCE

There is no specific primary legislation in England or the wider UK that sets quantitative limits or statutory criteria for the assessment of shadow flicker effects from onshore wind turbines. The assessment is therefore informed by national and local planning policy, supported by relevant guidance and industry best practice.

16.4.1.1 NATIONAL PLANNING POLICY

16.4.2 NATIONAL POLICY STATEMENTS

The energy National Policy Statements (NPSs), EN-1 – EN-6, outline the government's policy for delivering major energy infrastructure. The NPSs that are of relevance to the Proposed Development are:

- Overarching National Policy Statement for Energy (EN-1) (2025)[407];
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (2025)[408]; and
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (2025)[409].

Details of specific policies within EN-3 that are considered relevant to shadow flicker are set out in **Table 16.2** below. There are no additional policies included in EN-1 or EN-5 relevant to the shadow flicker assessment.

TABLE 16.2 NATIONAL PLANNING POLICY STATEMENTS

NPS Reference	NPS Requirement
EN-3, paragraph 2.12.167	*"Where wind turbines are proposed that are ten rotor diameters and beyond from properties, the Secretary of State should consider that the*

[407] Department for Energy Security & Net Zero (2026) Overarching National Policy Statement for Energy (EN-1). Available online at: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1

[408] Department for Energy Security & Net Zero (2025) National Policy Statement for Renewable Energy (EN-3). Available online at: https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3-2025/national-policy-statement-for-renewable-energy-infrastructure-en-3-2025-accessible-webpage

[409] Department for Energy Security and Net Zero (2025) National Policy Statement for Electricity Networks Infrastructure (EN-5). Available online at: National Policy Statement for electricity networks infrastructure (EN-5), 2025 (accessible webpage) - GOV.UK

NPS Reference	NPS Requirement
	impacts are sufficiently diminished so as to have no significant impact on that property."
EN-3, paragraph 2.12.168	"Shadow flicker frequencies are not in the region known to induce seizures in sufferers of epilepsy (which is above 3 hertz129), and as such, where the frequency of potential flashes will not exceed 3 hertz, the Secretary of State should give no weight to any claims of effects on people with epilepsy from onshore wind turbines."

16.4.2.1 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

There are no specific requirements relevant to the shadow flicker assessment in the NPPF.

16.4.2.2 LOCAL PLANNING POLICY

There are no specific policies in either the Northumberland County Council Local Plan 2016–2036[410] or the Northumberland National Park Local Plan (2020) relevant to shadow flicker.

16.4.2.3 GUIDANCE

The shadow flicker assessment will also be informed by the following guidance and good practice documents:

- UK Government Planning Practice Guidance (PPG) for Renewable and Low Carbon Energy[411]. The Planning Practice Guidance identifies that shadow flicker effects are most likely to occur within a distance of ten times the rotor diameter of a turbine and that, at UK latitudes, only properties located

[410] Northumberland County Council (2018) Northumberland Local Plan 2016–2036. Available online at: https://www.northumberland.gov.uk/planning-and-building/planning-policy/northumberland-local-plan-2016-2036

[411] UK Government (2013) Planning Practice Guidance for Renewable and Low Carbon Energy. Available online at: https://www.gov.uk/government/publications/planning-practice-guidance-for-renewable-energy

within 130 degrees either side of north relative to the turbines are likely to be affected.

- Department of Energy and Climate Change, Update of UK Shadow Flicker Evidence Base[412]; and
- Northern Ireland Wind Energy Development Guidelines, Planning Policy Statement 18 'Renewable Energy'[413].

In the absence of detailed England-specific technical guidance or statutory thresholds, the above documents are widely regarded as representing accepted UK industry best practice and are considered material considerations in informing the assessment methodology and significance criteria.

16.4.3 BASELINE CONDITIONS AND KEY SENSITIVITIES

Shadow flicker receptors constitute office buildings and residential properties, or other buildings where it can be justified that people may spend a significant amount of time and therefore be impacted by shadow flicker effects. Given the rural, upland nature of the Site, residential properties within the vicinity of the Site are mostly sparsely distributed with more densely distributed properties associated with the nearby settlements of West Woodburn, Otterburn, Elsdon, and Kirkwhelpington

A desk-top assessment using OS AddressBase data and aerial imagery will be completed to confirm properties which are residential in nature and fall within the shadow flicker Study Area (defined in **Section 16.4.5**) for further assessment.

16.4.4 POTENTIAL IMPACTS AND LIKELY SIGNIFICANT EFFECTS

Under certain combinations of geographical position and time of day, when a wind farm is operational, the sun may pass behind the rotors of a wind turbine and cast a shadow over neighbouring properties. Shadow flicker is an effect that can occur when the shadow of a blade passes over a small opening (such as a window), briefly reducing the intensity of light within the room, and causing a flickering to be perceived. Shadow flicker effects can only occur

[412] Department of Energy and Climate Change (2014) Update of UK Shadow Flicker Evidence Base. Available online at: https://www.gov.uk/government/publications/update-of-uk-shadow-flicker-evidence-base

[413] Department of the Environment (Northern Ireland) (2009) Planning Policy Statement 18: Renewable Energy. Available online at: https://library2.nics.gov.uk/pdf/drd/2009/0021.pdf

inside buildings when the blade casts a shadow across an entire window opening and can cause disturbance or nuisance to residents.

Shadow flicker effects would not occur during construction and decommissioning, as the turbines need to be operational to cast shadows on nearby properties. Potential shadow flicker impacts would only occur during the operational phase of the Proposed Development.

Shadow flicker would also only be caused by the turbines within the Proposed Development, and therefore the Cable Corridor Options would not need to be considered within the assessment.

16.4.5 ASSESSMENT METHODOLOGY

The shadow flicker assessment will be undertaken in line with the relevant policy and guidance outlined in **Section 16.4.1**.

As stated in **Section 16.4.1**, there is no formal, legally binding UK or English legislation that directly addresses the assessment or control of shadow flicker. As such, no statutory legislation will contribute to any aspects of this assessment. Northern Irish guidance will be utilised given the lack of English guidance available.

The proposed methodology will be prepared in line with the guidance and standards listed above. Due to the lack of explicit guidance in England, guidance within the UK is considered to be instructive for assessing shadow flicker effects. Guidance produced by the UK Government, 'Planning Practice Guidance for Renewable and Low Carbon Energy' states that "only properties within 130 degrees either side of north relative to the turbines can be affected at these latitudes in the UK – turbines do not cast long shadows on their southern side."

The guidance expresses the expectation for wind energy developments to be located a minimum distance of ten times the blade diameter of the turbine(s) from any regularly operated buildings not associated with the Proposed Development. Within a distance less than ten times the blade diameter, a shadow flicker assessment will be required. This distance equal to ten times the blade / rotor diameter from the turbine locations will be used as the Shadow Flicker Study Area within the assessment.

Initial baseline analysis has indicated that there are properties located within a distance equal to ten times the rotor diameter from the Scoping Layout. A shadow flicker assessment will therefore be undertaken in the EIA to determine whether there will be any likely significant effects on surrounding properties,

and the results of the assessment will be referred to in the ES. This will examine all properties which lie within a distance of ten times the rotor diameter for each turbine. Although shadow flicker effects are unlikely to occur for receptors located to the south of the turbines (outwith 130 degrees either side of north), these receptors will be included in the shadow flicker assessment for completeness. Should any properties be located within the Shadow Flicker Study Area, Resoft Windfarm Release 5, a computer modelling programme, will be used to model the potential shadow flicker effects at surrounding properties to quantify the potential effects.

There are no set significance criteria within legislation with regards to the amount or duration of shadow flicker effects experienced at a receptor. It is proposed that the industry recognised limits are therefore applied for the purpose of the significance levels for the assessment. Northern Ireland Wind Energy Development Guidelines state that significant shadow flicker impacts would be defined as exceeding the following limits:

- Worst-case scenario – 30 hours per year or 30 minutes per day; and
- Realistic scenario – 8 hours per year based on the 'likely' duration of effects, which would be the worst-case scenario model outputs amended to reflect the realistic possible sunshine hours (and therefore conditions suitable for shadow flicker effects) at the Site.

Due to the proximity of existing operational wind farms (e.g. Ray Wind Farm), it is possible that receptors could be located within the Shadow Flicker Study Area of the Proposed Development, in addition to shadow flicker study areas from one or more other wind farm developments (equal to a distance of ten times the rotor diameter of those developments from the turbine locations of the existing developments). Other developments would not be included in this assessment as the impacts of shadow flicker relates directly nature of wind turbines. An assessment of the Proposed Development alongside applicable operational wind farms would form part of the baseline assessment.

The ES will also consider the potential for or a cumulative assessment with schemes in planning if applicable, with the methodology to follow the isolated shadow flicker assessment detailed above.

16.4.6 MITIGATION

Mitigation measures for shadow flicker effects would be explored once potential likely significant effects have been identified during the EIA. If required, a Shadow Flicker Protocol would be submitted and approved with Northumberland County Council prior to the construction of the Proposed

Development. This protocol would set out the steps to be followed in the event that a shadow flicker complaint is received from a receptor within the Study Area and identify potential mitigation measures. These mitigation measures may include the provision of internal or external screening at the property of the complainant, or programming of the turbines to reduce or avoid impacts caused by shadow flicker. Operation of the Proposed Development would then be undertaken in accordance with the Shadow Flicker Protocol.

16.4.7 PROPOSED SCOPE OF THE ES CHAPTER

Any properties beyond the 10 times the rotor diameter Study Area will be scoped out of the shadow flicker assessment. Any potential receptors within the Shadow Flicker Study Area will be **scoped in** to the EIA.

Should the design evolution of the Proposed Development result in no potential receptors being located within the Shadow Flicker Study Area, this conclusion may be updated.

16.5 AIR QUALITY

This section outlines the relevant baseline conditions, policy context and likely significant air quality effects associated with the Proposed Development, along with the proposed approach to assessment and scoping.

16.5.1 LEGISLATION, POLICY AND GUIDANCE

16.5.1.1 LEGISLATION

- The Environment Act 1955[414] – statutory basis for the Local Air Quality Management Regime and AQMAs;
- National Planning Policy Framework (NPPF) (2024)[415] – relevant policy on air quality;

Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 - require assessment of likely significant environmental effects, including air quality.

16.5.1.2 NATIONAL PLANNING POLICY

National Policy Statements

[414] UK Government (1955) Environment Act 1995. Available online at; https://www.legislation.gov.uk/ukpga/1995/25/contents
[415] UK Government (2012) National Planning Policy Framework. Available online at: https://www.gov.uk/government/publications/national-planning-policy-framework--2

The energy National Policy Statements (NPSs), EN-1 – EN-6, outline the government's policy for delivering major energy infrastructure. The NPSs that are of relevance to the Proposed Development are

- Overarching National Policy Statement for Energy (EN-1) (2025)[416];
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (2025); and
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (2025).

Details of specific policies within EN-1 that are considered relevant to air quality are set out in **Table 16.3** below. There are no additional policies in EN-3 or EN-5 relevant to air quality.

TABLE 16.3 NATIONAL PLANNING POLICY STATEMENTS

NPS Reference	NPS Requirement
EN-1, paragraph 5.2.9	*"The ES should describe:* • *existing air quality concentrations and the relative change in air quality from existing levels;* • *any significant air quality effects, mitigation action taken and any residual effects, distinguishing between the project stages and taking account of any significant emissions from any road traffic generated by the project;* • *the predicted absolute emissions, concentration change and absolute concentrations as a result of the proposed project, after mitigation methods have been applied; and* • *any potential eutrophication impacts."*
EN-1, paragraph 5.2.11	*"Defra publishes future national projections of air quality based on estimates of future levels of emissions, traffic, and vehicle fleet. Projections are*

[416] UK Government (2025) Overarching National Policy Statement for Energy (EN-1). Available online at: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1-2025/overarching-national-policy-statement-for-energy-en-1-2025-accessible-webpage

NPS Reference	NPS Requirement
	updated as the evidence base changes and the applicant should ensure these are current at the point of an application. The applicant's assessment should be consistent with this but may include more detailed modelling and evaluation to demonstrate local and national impacts. If an applicant believes they have robust additional supporting evidence, to the extent they could affect the conclusions of the assessment, they should include this in their representations to the Examining Authority along with the source".
EN-1, paragraph 5.2.13	*"The Secretary of State should consider whether mitigation measures are needed both for operational and construction emissions over and above any which may form part of the project application. A construction management plan may help codify mitigation at this stage. In doing so the Secretary of State should have regard to the Air Quality Strategy in England, or the Clean Air Plan for Wales in Wales, or any successors to these and should consider relevant advice within Local Air Quality Management guidance and $PM_{2.5}$ targets guidance".*

16.5.1.3 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England, and how they are expected to be applied.

Chapter 15 para 187 of the NPPF notes that planning policies and decisions should tribute to and enhance the natural and local environment by:

"preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans"

In dealing specifically with air quality, the NPPF states, at para 199, that:

- "Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."

16.5.1.4 LOCAL PLANNING POLICY

Local planning policy relevant to air quality will be identified and drawn from the local plans. Northumberland Local Plan 2016-2036 does not include any relevant policies. However, he Northumberland National Park Local Plan adopted in 2020 includes one key policy:

- Policy POL 2 Pollution and air, soil and water quality.

16.5.1.5 GUIDANCE

- UK Air Quality Strategy[417] - sets national objectives for key pollutants, including NO_2, PM_{10} and PM;
- DEFRA Local Air Quality Management Technical Guidance (LAQM TG22)[418] - provides guidance on screening traffic-related emissions;
- IAQM Guidance on the Assessment of Dust from Demolition and Construction (2024)[419] - provides the recognised framework for assessing dust risk and defining appropriate mitigation; and

[417] UK Government (2023) The Air Quality Strategy for England. Available online at: https://www.gov.uk/government/publications/the-air-quality-strategy-for-england
[418] Defra (2022) Local Air Quality Management Technical Guidance (LAQM TG22). Available online at: https://laqm.defra.gov.uk/air-quality/featured/uk-regions-exc-london-technical-guidance/
[419] IAQM (2024) Guidance on the Assessment of Dust from Demolition and Construction (Version 2.2). Available online at: https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf

- IAQM Guidance on Land Use Planning and Development Control (2017)[420] - provides additional planning specific guidance on air quality considerations.

No operational combustion plant or other operational emission sources form part of the Proposed Development, and no additional legislation is applicable.

16.5.2 BASELINE CONDITIONS AND KEY SENSITIVITIES

This section provides a review of existing air quality conditions in the vicinity of the Proposed Development to provide a benchmark against which to assess potential air quality impacts. Baseline air quality data for relevant pollutants will be obtained from publicly available national and local monitoring datasets, including:

- DEFRA's online monitoring networks map;
- DEFRA's UK Ambient Air Quality Interactive Map;
- DEFRA's Air Quality Management Area (AQMA) Interactive Map; and
- Local authority air quality monitoring data.

The Proposed Development is not located within an AQMA. Review of DEFRA publicly available interactive map[421] indicates that the nearest designated AQMAs are located approximately 18.3 km south of the existing Fourstones Substation, where the Proposed Development will connect to the electricity network. These include Durham County Council Air Quality Management Area Durham City No. 2 (Order 2014) and Chester-le-Street No. 2.

Other AQMAs in the wider region include:

- Northumberland County Council AQMAs No. 1–6 approximately 20 km west of the Site;
- Kendal AQMA approximately 22.8 km south-west of the grid connection point;
- Newcastle City Centre AQMA No. 1b approximately 24 km east of the Site.

Sensitive receptors relevant to air quality include residential properties and community facilities located along potential construction traffic routes. Further baseline confirmation will be provided once the detailed access strategy is finalised.

[420] IAQM (2017) Guidance on Land-Use Planning and Development Control: Planning for Air Quality (v1.2). Available online at: https://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf
[421] Defra (ongoing) Air Quality Management Areas (AQMAs) – Interactive Maps. Available online at: https://uk-air.defra.gov.uk/aqma/maps/

16.5.3 POTENTIAL IMPACTS AND LIKELY SIGNIFICANT EFFECTS

Potential likely significant effects are limited to the construction and decommissioning phases, including:

- temporary dust emissions from earthworks and vehicle movements;
- emissions from non-road mobile machinery (NRMM); and
- traffic-related emissions from construction traffic.

The Proposed Development includes no operational combustion sources, and therefore operational air quality impacts are not anticipated.

All AQMAs are located at considerable distance from the Proposed Development and are unrelated to anticipated turbine delivery routes. As such, direct air quality impacts on designated AQMAs are unlikely.

Traffic-related air quality effects will be considered in **Chapter 12: Access, Traffic and Transport**, which applies LAQM TG22 screening thresholds to determine whether construction traffic may give rise to measurable air quality changes.

16.5.4 ASSESSMENT METHODOLOGY

The air quality assessment will comprise:

- IAQM Construction Dust Risk Assessment - to classify dust risk and identify required mitigation measures;
- Screening of construction traffic using LAQM TG22 thresholds to determine whether emissions require further assessment;
- Review of AQMAs once baseline mapping and construction traffic routes have been finalised.

No operational air quality modelling is required, as the Proposed Development contains no operational emission sources.

16.5.5 MITIGATION

Construction-phase air quality impacts will be controlled through standard good-practice mitigation implemented via the Outline Construction Environmental Management Plan (oCEMP), including:

- dust suppression measures;
- haul-road maintenance and vehicle speed limits;
- wheel washing (if required);
- appropriate storage/handling of materials; and
- emission-controlled NRMM (e.g., Stage V compliant where practicable).

Traffic-related impacts will be managed through the Outline Traffic Management Plan (oTMP). Decommissioning-phase air quality effects will be managed through equivalent measures to those applied during construction, such as a Decommissioning Environmental Management Plan (DEMP).

These measures are expected to reduce residual air quality impacts to negligible.

16.5.6 PROPOSED SCOPE OF THE ES CHAPTER

Based on the anticipated scale of construction works, expected traffic volumes and the lack of operational emissions, significant air quality effects are unlikely.

Construction traffic levels are expected to remain below LAQM TG22 screening thresholds, and any routes passing through AQMAs (if relevant) are expected to experience traffic increases too small to trigger detailed assessment. This will be verified once the traffic assessment is complete. Traffic-related air quality effects are addressed in **Chapter 12: Access, Traffic and Transport**.

As construction dust effects can be effectively mitigated through the OCEMP, and operational effects are absent, air quality is proposed to be **scoped out** of the assessment in the EIA.

A summary of scoped in and scoped out topics is provided in **Table 16.7**.

16.6 FORESTRY

This section has been prepared by RTS Forestry. With forestry present throughout the Site and the Cable Corridor Options, it will be necessary for the ES to assess the impacts of the construction and operation and decommissioning of the Proposed Development on all forestry assets.

16.6.1 LEGISLATION, POLICY AND GUIDANCE

16.6.1.1 LEGISLATION

Relevant legislation for forestry includes:

- The Forestry Act (1967) - regulates tree felling and sets out the requirements for felling licences and restocking. This will inform the need to quantify the loss of woodland, identify felling licence requirements, and compensatory restocking.
- EIA (Forestry) (England and Wales) Regulations 1999
- The UK Forestry Standard (UKFS) (5th edition, 2023) - sets out the UK Government’s approach to sustainable forest management and provides the benchmark for forestry good practice. It provides guidance on

environmental protection, biodiversity, and sustainable woodland management. All proposals will be developed in accordance with its principles and guidelines.

16.6.1.2 NATIONAL PLANNING POLICY

16.6.1.3 NATIONAL POLICY STATEMENTS

The energy National Policy Statements (NPSs), EN-1 – EN-6, outline the government's policy for delivering major energy infrastructure. The NPSs that are of relevance to the Proposed Development are:

- Overarching National Policy Statement for Energy (EN-1) (2025);
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (2025); and
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (2025)[7].

Details of specific policies within EN-1 that are considered relevant to forestry are set out in **Table 16.4** below. There are no additional policies in EN-3 and EN-5 relevant to forestry.

TABLE 16.4 NATIONAL PLANNING POLICY STATEMENTS

NPS Reference	NPS Requirement
EN-1, paragraph 4.6.13	*"In addition to delivering biodiversity net gain, developments may also deliver wider environmental gains and benefits to communities relevant to the local area, and to national policy priorities, such as: [...]* he enhancement, expansion or provision of trees and woodlands"
EN-1, paragraph 5.4.33	*Applicants should include measures to mitigate fully the direct and indirect effects of development on ancient woodland, ancient and veteran trees or other irreplaceable habitats during both construction and operational phases*
EN-1, paragraph 5.4.55	*"The Secretary of State should not grant development consent for any development that would result in the loss or deterioration of any irreplaceable habitats, including ancient*

NPS Reference	NPS Requirement
	woodland, and ancient and veteran trees unless there are wholly exceptional reasons and a suitable compensation strategy exists.
EN-1, paragraph 5.11.27	*"Existing trees and woodlands should be retained wherever possible. Under the Environment Act 2021 the government set a legally binding target to increase the tree canopy and woodland cover to 16.5% of total land area of England by 2050. The Environmental Improvement Plan recognises the need to protect and increase tree canopy and woodland covers. The applicant should assess the impacts on, and loss of, all trees and woodlands within the project boundary and develop mitigation measures to minimise adverse impacts and any risk of net deforestation as a result of the scheme."*

16.6.1.4 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

The NPPF highlights the importance on the maintenance and retention of trees in new developments. Paragraph 136 notes that:

"Trees make an important contribution to the character and quality of urban environments, and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure that new streets are tree-lined, that opportunities are taken to incorporate trees elsewhere in developments (such as parks and community orchards), that appropriate measures are in place to secure the long-term maintenance of newly-planted trees, and that existing trees are retained wherever possible. Applicants and local planning authorities should work with highways officers and tree officers to ensure that the right trees are planted in the right places, and solutions are found that are compatible with highways standards and the needs of different users."

16.6.1.5 LOCAL PLANNING POLICY

Local planning policy relevant to landscape and visual matters will be identified and drawn from the Northumberland Local Plan 2016-2036. Key Policies include:

- Policy QOP Landscaping and Trees

The Northumberland National Park Local Plan adopted in 2020 key policies include;

- Policy DM 12 Trees, Woodland and Forests

16.6.1.6 GUIDANCE

- Guidance from Natural England, including the Ancient Woodland Inventory[422] - will be used to identify the presence and sensitivity of any ancient woodland. This will inform the baseline characterisation and the scoping of potential effects.
- Guidance from the Forestry Commission[423] - informs the approach to felling licence requirements, woodland removal, and restocking obligations, ensuring alignment with current forestry regulatory practice.

16.6.2 BASELINE CONDITIONS AND KEY SENSITIVITIES

Located to the west of A696 county road just south of Otterburn in Northumberland, the Site extends to just over 1,430 ha and is split into two distinct blocks of land. The smaller block, 460.50 ha, to the east of the A-road is located on typical landscape for the area; agricultural rough grazing land primarily used for sheep farming. The larger block to the west comprises approximately 969.10 ha, of which around 71.06% is made up of large-scale commercial forestry plantation.

The forestry baseline for the Site was obtained from aerial photography which was subsequently ground-truthed on foot and extends to approximately 688.70 ha. Much of the woodland is recorded as 'Conifer' under the National Forest Inventory for Great Britan; there are no records within the Site on the Ancient Woodland Inventory.

The coniferous plantation is split across three land parcel; Raylees, Wishaw and Yearhaugh—each under separate ownership. Raylees, situated to the north of the Site is covered by an existing woodland management plan and had active felling operations underway at time of survey (August 2025).

Species diversity includes approximately 68% Sitka spruce; 18% Sitka and Norway spruce mix; 7% Mixed Broadleaves (Oak, Silver birch, Rowan, Goat

[422] Natural England (2018) Ancient Woodland Inventory handbook. Available online at: Ancient Woodland Inventory handbook - NECR248
[423] Forestry Commission (2021) Environmental Impact Assessments for woodland. Available online at: Environmental Impact Assessments for woodland - GOV.UK

willow and Hawthorne); 7% Mixed Conifers (Scots pine, Lodgepole pine, Hybrid larch, Western Hemlock, Serbian spruce).

The woodland survey, carried out in August 2025, indicates that 8% is estimated at five-years and under; 22% is between five and ten years old; 9% is between ten and thirty-years; 60% are older mature crops between thirty and forty-years old with the remaining 1% being older broadleaf woodlands estimated at over seventy-years old.

Existing forestry compartment records will be reviewed when available and additional surveys conducted to fully assess and document the existing forest across the Site. A forestry baseline survey will then be prepared to describe the forest crops present at the time the ES is compiled, including accurate and detailed information on species, year of planting, and any restocking design proposals set out in existing and approved forestry plans.

In addition to the Site, the Proposed Development includes the grid connection to an existing substation located approximately 20 km to the south. Three potential Cable Corridor Options are currently under consideration, each comprising a combination of overhead lines and underground cabling.

The Cable Corridor Options pass through a variety of woodland habitats, including commercial conifer plantations, broadleaved woodland, recently felled areas, and areas of unstocked land. Collectively, the Cable Corridor Options also intersect approximately 8.75 ha of recorded ancient woodland, comprising both Plantation on Ancient Woodland Sites (PAWS) and Ancient Semi-Natural Woodland (ASNW).

A detailed forestry baseline survey will be undertaken in the field to inform the ES. This will characterise and further detail the woodland resource within the selected grid connection route(s).

16.6.3 POTENTIAL IMPACTS AND LIKELY SIGNIFICANT EFFECTS

Areas of woodland will need to be felled for the construction and operation of the wind turbines and associated infrastructure for the Proposed Development. Additional areas of woodland may also need to be felled for environmental and/or technical reasons, such as felling to create windfirm edges. These works will, in places, require earlier than optimal tree felling for parts of the coniferous plantation.

The structure of the woodland may therefore change, resulting in a potential loss of woodland in area. This will need to be addressed through the redesign of the existing forest including, for example, the use of designed open space or

alternative woodland types or the likely provision of compensatory woodland planting on an alternative site.

The associated grid connection for the Proposed Development will also impact areas of forest. Woodland within the selected Cable Corridor Options will need to be felled for the construction and operation of the overhead lines and/or underground cables. Additional areas of woodland may also need to be felled to create windfirm edges, in a similar manner to that described above for the turbine infrastructure. Any felling will require compensatory woodland planting. There are also areas of Ancient Woodland that may be affected, although these should be avoided where practicable.

16.6.4 PROPOSED ASSESSMENT METHODOLOGY

A forestry assessment will be included within the 'Other Issues' Chapter of the ES for the Proposed Development. This will cover both the wind turbines and associated infrastructure within the Site and associated grid Cable Corridor(s). The assessment will:

- Confirm the species and age structure of existing forestry crops affected;
- Determine the significance of forestry effects based on receptor sensitivity and the magnitude of impact;
- Analyse impacts of any necessary tree removal to facilitate the Proposed Development on existing Forestry plans;
- Analyse impacts of the grid connection on any Ancient Woodland;
- Identify measures necessary to mitigate the impact of the Proposed Development on existing forestry crops.

The Forestry Commission will be consulted on the proposals relating to the restructuring of the forestry cover as a consequence of the Proposed Development, to ensure that the proposed changes to the existing forestry crops are appropriate and suitably address the requirements of the EIA (Forestry) (England and Wales) Regulations 1999, the Forestry Act 1967 and the United Kingdom Forest Standard (UKFS).

All landowners of forestry assets affected will be consulted on the development of the proposals relating to the restructuring of the forestry cover as a consequence of the Proposed Development. This aims to ensure that the proposed changes to the existing forestry crops are appropriate and suitably address the structural integrity and quality standards of their bordering coupes.

The changes to the woodland structure will be analysed and described in relation to species composition, age class structure, commercial timber production and value etc with supporting text, tales, diagrams and maps as necessary.

Forestry proposals will be prepared in line with current industry best-practice guidance. They will set out the timing and extent of woodland felling over the life of the Proposed Development and provide an overview of forestry waste. Where required, restocking proposals will also be included, detailing all replanting obligations, either within the Site or through compensatory planting at alternative sites.

16.6.5 MITIGATION

Mitigation by design measures will reduce the woodland loss required for the Proposed Development.

The Forestry Act 1967 and the UK Forestry Standard regulate tree removal and set out the requirements and principles which should be considered when removing woodland cover, including the provision of compensatory restocking measures. These requirements will be addressed within the ES.

16.6.6 PROPOSED SCOPE OF EIA CHAPTER

The Forestry section of the ES will detail tree felling and replanting required, and woodland loss due to the Proposed Development including associated development such as infrastructure, grid connection, tracks, grid connection, and environmental/ green edge buffers.

16.7 HUMAN HEALTH

16.7.1 LEGISLATION POLICY AND GUIDANCE

Legislation and Policy, Assessment of potential effects on human health will be undertaken in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017[424] and relevant national planning policy, including the National Policy Statements (EN-1, EN-3 and EN-5) and the International Commission on Non-Ionizing Radiation Protection (ICNIRP)

[424] UK Government (2017) The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (SI 2017/572). Available online at: https://www.legislation.gov.uk/uksi/2017/572/contents

Guidelines[425], which set out the principles for considering health within the EIA process. Relevant good practice guidance[426,427], including the Government's Planning Practice Guidance[428] (PPG) on noise, air quality, flood risk, contaminated land and EIA, will also be applied where these environmental pathways have the potential to influence human health.

No additional human-health-specific legislation or guidance is required beyond that already referenced in the corresponding technical assessments.

16.7.2 BASELINE CONDITIONS AND KEY SENSITIVITIES

Please refer to **Section 2.2** of this Report for details on general Site context.

16.7.3 POTENTIAL IMPACTS AND LIKELY SIGNIFICANT EFFECTS

Aspects which have potential to affect human health during construction, operation and decommissioning include land contamination, pollution of water supplies, noise and vibration, air quality, traffic, and socio-economics. All of these aspects are covered by other chapters of this Report including:

- Chapter 10: Geology and Peat;
- Chapter 11: Water Resources and Flood Risk;
- Chapter 12: Access, Traffic and Transport;
- Chapter 13: Noise and Vibration;
- Chapter 14: Climate Change and Carbon Balance; and
- Chapter 15: Socio-Economics, Tourism and Recreation.

EMF relating to the Site infrastructure such as the BESS and the grid connection infrastructure have been considered and it is not expected to give rise to significant effects. The ICNIRP Guidelines[429] state that HVDC lines charge particles in the air and there is a potential for an increased health risk associated with air pollution, as charged particles might be better absorbed in

[425] International Commission on Non-Ionizing Radiation Protection (2020). RF EMF Guidelines 2020. Available online at: https://www.icnirp.org/en/activities/news/news-article/rf-guidelines-2020-published.html
[426] IEMA (2022) Effective Scoping of Human Health in Environmental Impact Assessment
[427] IEMA (2022) Determining Significance for Human Health in Environment Impact Assessment
[428] UK Government (ongoing) Planning Practice Guidance (PPG). Available online at: https://www.gov.uk/government/collections/planning-practice-guidance
[429] ICNIRP (2026) Power Lines Low Frequency. Available online at: https://www.icnirp.org/en/applications/power-lines/index.html

the lung. However, it is concluded that this increased health risk is very unlikely and overall research has not shown that exposure to EMF has detrimental effects on human health.

Likely significant effects relating to mental health or wellbeing arising from landscape change, noise or construction disruption amenity-related health effects will be considered within the LVIA, noise and socio-economics assessments.

16.7.4 PROPOSED ASSESSMENT METHODOLOGY

The proposed methodology will be prepared in line with guidance and standards listed in 0. Methodologies proposed to assess potential impacts and effects on Human Health are referred to in the chapters noted in **Section 16.7.3**.

16.7.5 MITIGATION

Mitigation proposed to address any likely significant adverse effects on human health are referred to in the chapters noted in **Section 16.7.3.**

16.7.6 PROPOSED SCOPE OF THE ES CHAPTER

There are unlikely to be significant effects to human health as a result of the Proposed Development that are not adequately covered by other chapters as noted in **Section 16.7.3**. It is therefore proposed that Human Health as a topic is **scoped out** of the EIA.

See **Table 16.7** for a summary of topics pertaining to Other Issues to be scoped in to and scoped out of further assessment.

16.8 MAJOR ACCIDENTS AND DISASTERS

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 require an EIA to identify, describe and assess, in an appropriate manner, the expected significant effects arising from the vulnerability of a development to major accidents or natural disasters.

16.8.1 LEGISLATION, POLICY AND GUIDANCE

16.8.1.1 LEGISLATION

The following legislation establishes the regulatory framework for safety, construction, and accident prevention applicable to the Proposed Development:

- Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (SI 2017/572) - require assessment of "expected significant effects

arising from the vulnerability of developments to major accidents or disasters".

- Health and Safety at Work etc. Act 1974[430] - establishes overarching duties to prevent risks to workers and the public.
- Construction (Design and Management) Regulations 2015[431] (CDM 2015) - sets out health and safety requirements for construction and decommissioning activities.
- Electricity Safety, Quality and Continuity Regulations (ESQCR) 2002 (as amended)[432] -relevant to the design and operation of electrical infrastructure, including OHL and UGC.
- Control of Major Accident Hazards Regulations 2015[433] (COMAH) - UK framework implementing major accident hazard principles. While the Proposed Development does not fall within COMAH thresholds, the principles inform general good practice.

16.8.1.2 NATIONAL PLANNING POLICY

National policy statements

The energy National Policy Statements (NPSs), EN-1 – EN-6, outline the government's policy for delivering major energy infrastructure. The NPSs that are of relevance to the Proposed Development are:

- Overarching National Policy Statement for Energy (EN-1) (2025);
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (2025); and

[430] UK Government (1974) Health and Safety at Work etc. Act 1974. Available online at: https://www.legislation.gov.uk/ukpga/1974/37/contents
[431] UK Government and Health and Safety Executive (2015) The Construction (Design and Management)
Regulations 2015. Available online at:
https://www.hse.gov.uk/construction/cdm/2015/index.htm
[432] UK Government (2002) The Electricity Safety, Quality and Continuity Regulations 2002 (SI 2002/2665). Available online at:
https://www.legislation.gov.uk/uksi/2002/2665/contents
[433] UK Government (2015) The Control of Major Accident Hazards Regulations 2015 (SI 2015/483). Available online at:
https://www.legislation.gov.uk/uksi/2015/483/contents

- National Policy Statement for Electricity Networks Infrastructure (EN-5) (2025)[434].

Details of specific policies within EN-1 that are considered relevant to major accidents and disasters are set out in **Table 16.5** below. There are no additional policies in EN-3 and EN-5 relevant to major accidents and disasters.

TABLE 16.5 NATIONAL PLANNING POLICY STATEMENTS

NPS Reference	NPS Requirement
EN-1, paragraph 4.13.5	*"Applicants should consult with the HSE on matters relating to safety"*
EN-1, paragraph 4.13.7	*"If a safety report is required it is important to discuss with the Competent Authority the type of information that should be provided at the design and development stage, and what form this should take. This will enable the Competent Authority to review as much information as possible before construction begins, in order to assess whether the inherent features of the design are sufficient to prevent, control and mitigate major accidents."*

16.8.1.3 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

The NPPF does not contain any relevant considerations for major accidents and disasters.

16.8.1.4 LOCAL PLANNING POLICY

There are no policies specific to major accidents and disasters in either the Northumberland Local Plan 2016-2036 or Northumberland National Park Local Plan (2020).

[434] UK Government (2025) National Policy Statement for Electricity Networks Infrastructure (EN□5). Available online at: https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5-2025

16.8.1.5 GUIDANCE

The following guidance documents provide established industry and professional best practice on managing safety and major accident risks:

- ISEP (2020) Major Accidents and Disasters in EIA[435]: A Primer - provides a proportionate, risk-based approach to considering major accidents and disasters in EIA.
- Energy Institute Wind Turbine Safety Rules (WTSR), 4th Edition (2021)[436] - industry rules governing safe operation and maintenance of wind turbines.
- RenewableUK Onshore Wind Health and Safety Guidelines (2015)[437] - good-practice guidance for safe development and operation of onshore wind farms.
- Industry good-practice standards for BESS[438] - including fire safety, spacing, thermal management and emergency response design principles.
- National Fire Chief Council (NFCC) Battery Energy Storage Systems (BESS) Position Statement[439]

16.8.2 BASELINE CONDITIONS AND KEY SENSITIVITIES

Please refer to **Section 2.2** for details on general Site context.

The Proposed Development is not located within an area known for natural disasters such as wildfires, floods, hurricanes, tornadoes, volcanic eruptions, earthquakes, or tsunamis. As climate change progresses, however, weather events are becoming more extreme, and it is likely that the UK will see an increase in large storms, high rainfall events and flooding in the future.

The area around the Site is forested and may be at risk of forest fires, especially as summers become hotter and drier due to climate change going forward. Further detail is provided in **Chapter 14.**

[435] ISEP (2020) Major Accidents and Disasters in EIA: An ISEP Primer. Available online at: https://www.isepglobal.org/content/major-accidents-and-disasters-in-eia-an-isep-primer-october-2020/
[436] Energy Institute (2021) Wind Turbine Safety Rules (WTSR). Available online at: https://www.energyinst.org/technical/wind-operational-safety-rules
[437] RenewableUK (2015) Onshore Wind Health & Safety Guidelines. Available online at: Onshore Wind Health & Safety Guidelines | PDF
[438] European Union (2023) Regulation (EU) 2023/1542 concerning batteries and waste batteries. Available online at: https://eur-lex.europa.eu/eli/reg/2023/1542/oj/eng
[439] NFCC Battery Energy Storage Systems (BESS) Position Statement. Available online at: https://nfcc.org.uk/our-services/public-policy/position-statements/battery-energy-storage-systems/

16.8.3 POTENTIAL IMPACTS AND LIKELY SIGNIFICANT EFFECTS

During all phases of the Proposed Development, including decommissioning, there is a risk of environmental incidents such as accidental leaks/spills of oil, fuel chemicals or waste material, and of major accidents resulting from infrastructure failure.

Additionally, the risk of a major accident, including those which could impact upon the health of people living, working, and recreating in the proximity of the Proposed Development, could be increased by the probability of natural disasters associated with the location of the Proposed Development. This should be considered during the preparation of major accident scenarios. However, as stated in **Section 16.8.2**, natural disasters are unlikely at this Site and are therefore unlikely to have a bearing on the risk of major accidents and disasters at this location.

Increased windstorms and windspeeds, and increased heat and dryness because of climate change may also have an impact on the Proposed Development, contributing to infrastructure failure.

Flooding is not expected to pose a significant risk to the operation of the Proposed Development due to the Site sitting within a Flood Zone 2 area and therefore does not constitute a major accident or disaster. For further details of flooding impacts associated with the Proposed Development, see **Chapter 11: Water Resources and Flood Risk**.

BESS can, in rare circumstances, be associated with fire or thermal runaway events if faults occur. However, these risks are well understood, can be engineered out through appropriate design and safety systems, and are not expected to give rise to significant environmental effects when standard controls are applied.

OHL infrastructure is designed to established electrical safety standards, and UGC installation eliminates above-ground structural risks.

16.8.4 ASSESSMENT METHODOLOGY

No methodology is proposed as the Applicant proposes to scope out this topic as a standalone chapter. Relevant risks will be considered, where appropriate, within the technical chapters of this Report and through established design, construction and operational controls.

16.8.5 MITIGATION

The Proposed Development layout and design will consider appropriate locations for siting project components and infrastructure to reduce the risk of

major accidents and disasters (e.g. avoiding the siting of the BESS facility on deep peat).

During the construction and decommissioning phases, potential incidents will be managed by the Applicant's appointed Principal Contractor through the implementation of a Construction Environmental Management Plan (CEMP) or Decommissioning Plan, including a Pollution Prevention Plan (PPP) and appropriate emergency response procedures. These documents will set out measures to prevent, control and respond to spillages, pollution events and other construction-related risks.

During the operational phase, an inspection and maintenance regime will be implemented to identify potential equipment failures and prevent leaks or releases from occurring. The storage and handling of oils, fuels and waste will be controlled through standard operational procedures, alongside routine audits and inspections.

Wind turbines incorporate automatic braking and shutdown mechanisms that limit operation during extreme wind speeds. In the event of severe windstorms, turbines would cease operation to prevent damage or structural failure. The Proposed Development is not located within an area prone to such extreme events, and the likelihood of infrastructure failure is considered very low.

Appropriate fire safety measures will be in place across all components of the Proposed Development. The BESS will be designed and operated in accordance with relevant industry good practice and fire safety standards, incorporating measures such as fire detection and suppression systems, suitable thermal management, and appropriate spatial separation from vegetation and other ignition sources. Staff will be briefed on emergency procedures, including response to fire events.

Health and safety during construction, operation and decommissioning will be managed in accordance with relevant legislation, including the Health and Safety at Work etc. Act 1974 and the Construction (Design and Management) Regulations 2015, as well as established industry good practice.

16.8.6 PROPOSED SCOPE OF THE ES CHAPTER

The EIA Regulations impose an obligation to consider the vulnerability of the Proposed Development to major accidents and disasters. It is considered that major accidents and disasters relating to health and safety can be proportionately addressed through embedded mitigation and compliance with Health and Safety legislation and therefore are scoped out of the EIA.

The risks associated with accidental leaks/spills of oil, fuel, chemicals, and wastes are scoped out of any further assessment of Major Accidents and Disasters, as this will be covered in **Chapter 11: Water Resources and Flood Risk**, and suitable mitigation will be provided prior to construction, as per standard construction mitigation practice, within the PPP and CEMP.

The area is not known for hurricanes, tornadoes, or volcanoes, and thus these natural disasters can be scoped out of assessment. It is proposed that the Proposed Development's vulnerabilities and resilience to natural disasters related to climate change can be scoped out of the EIA, as none of the identified climate change trends are likely to significantly affect the Proposed Development, with the exception of increased windstorms and potential wildfires caused by infrastructure failure. The potential for these latter natural disasters will be sufficiently mitigated through design and operational controls and therefore there no residual effects are expected.

It is concluded that no likely significant effects will arise due to major accidents and natural disasters as a result of the Proposed Development, and this topic can be **scoped out** of the EIA.

See **Table 16.7** for a summary of topics pertaining to Other Issues to be scoped in to and scoped out of further assessment.

16.9 CUMULATIVE EFFECTS

In accordance with the EIA Regulations[440], the EIA Report will consider likely significant cumulative effects.

16.9.1 LEGISLATION, POLICY AND GUIDANCE

16.9.1.1 LEGISLATION

Schedule 4, paragraph 5 of the EIA Regulations (as amended) requires:

"a description of the likely significant effects of the development on the environment resulting from, inter alia […] (e) the cumulation of effects with other existing and / or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;"

[440] UK Government (2017) The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. Available online at: The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

16.9.1.2 NATIONAL PLANNING POLICY

National Policy Statements

The energy National Policy Statements (NPSs), EN-1 – EN-6, outline the government's policy for delivering major energy infrastructure. The NPSs that are of relevance to the Proposed Development are:

- Overarching National Policy Statement for Energy (EN-1) (2025)[441];
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (2025)[442]; and
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (2025).

Details of specific policies within EN-1 that are considered relevant to cumulative impacts are set out in **Table 16.6** below. There are no additional policies in EN-3 and EN-5 that are relevant to cumulative impacts.

TABLE 16.6 NATIONAL PLANNING POLICY STATEMENTS

NPS Reference	NPS Requirement
EN-1, paragraph 4.1.5	*"In considering any proposed development, in particular when weighing its adverse impacts against its benefits, the Secretary of State should take into account:…* • *its potential adverse impacts, including on the environment, and including any long-term and cumulative adverse impacts, …"*
EN-1, paragraph 4.2.25	*"applicants should set out how residual impacts will be compensated for as far as possible. Applicants should also set out how any mitigation or compensation measures will be monitored and*

[441] UK Government (2025) Overarching National Policy Statement for energy (EN-1). Available online at: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1-2025/overarching-national-policy-statement-for-energy-en-1-2025-accessible-webpage

[442] UK Government (2025) National Policy Statement for renewable energy infrastructure (EN-3). Available online at: https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3-2025/national-policy-statement-for-renewable-energy-infrastructure-en-3-2025-accessible-webpage

NPS Reference	NPS Requirement
	reporting agreed to ensure success and that action is taken. Changes to measures may be needed e.g. adaptive management. The cumulative impacts of multiple developments with residual impacts should also be considered."
EN-1, paragraph 4.4.5	*"The impacts of more than one development may affect people simultaneously, so the applicant should consider the cumulative impact on health in the ES where appropriate."*
EN-1, paragraph 4.11.7	*"The Planning Act 2008 aims to create a holistic planning regime so that the cumulative effect of different elements of the same project can be considered together. Co-ordinated applications typically bring economic efficiencies and reduced environmental impact. The government therefore envisages that wherever reasonably possible, applications for new generating stations and related infrastructure should be contained in a single application to the Secretary of State or in separate applications submitted in tandem which have been prepared in an integrated way, as outlined in EN -5. This is particularly encouraged to ensure development of more co-ordinated transmission overall."*
EN-1, paragraph 4.12.14	*"Working in close cooperation with the EA or NRW and/or the pollution control authority, and other relevant bodies, such as the MMO, the SNCB, Drainage Boards, and water and sewerage undertakers, the Secretary of State should be satisfied, before consenting any potentially polluting developments, that:… the effects of existing sources of pollution in and around the site are not such that the cumulative effects of pollution when the proposed development is added would make that*

NPS Reference	NPS Requirement
	development unacceptable, particularly in relation to statutory environmental quality limits."
EN-1, paragraph 5.8.32	"*Where development may contribute to a cumulative increase in flood risk elsewhere, the provision of multifunctional sustainable drainage systems, natural flood management and green infrastructure can also make a valuable contribution to mitigating this risk whilst providing wider benefits."*
EN-1, paragraph 5.9.11	*"The applicant should undertake an assessment of any likely significant heritage impacts of the proposed development as part of the EIA, and describe these along with how the mitigation hierarchy has been applied in the ES (see Section 4.3). This should include consideration of heritage assets above, at, and below the surface of the ground. Consideration will also need to be given to the possible impacts, including cumulative, on the wider historic environment. The assessment should include reference to any historic landscape or seascape character assessment and associated studies as a means of assessing impacts relevant to the proposed project."*
EN-1, paragraph 5.10.16	"*The applicant should carry out a landscape and visual impact assessment and report it in the ES, including cumulative effects*."
EN-1, paragraph 5.13.4	"*The applicant's assessment should consider all relevant socio-economic impacts, which may include: … cumulative effects - if development consent were to be granted to for a number of projects within a region and these were developed in a similar timeframe, there could be some short-term negative effects, for example a potential shortage of construction workers to meet the needs*

NPS Reference	NPS Requirement
	of other industries and major projects within the region."
EN-1, paragraph 5.14.22	*"The Secretary of State should only consider refusing development on highways grounds if there would be an unacceptable impact on highway safety, residual cumulative impacts on the road network would be severe, or it does not show how consideration has been given to the provision of adequate active public or shared transport access and provision."*
EN-1, paragraph 5.16.7	*[Water Quality and Resources] states "The ES should in particular describe: …* *any cumulative effects."*

16.9.1.3 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

The NPPF places several requirements on the Local Planning Authority (LPA) to consider potential cumulative effects in both setting policy and in determining applications. The following NPPF paragraphs are relevant.

Paragraph 50 of the NPPF, referring to the determination of an application, states the following:

"…arguments that an application is premature are unlikely to justify a refusal of planning permission other than in the limited circumstances where both:

the development proposed is so substantial, or its cumulative effects would be so significant, that to grant permission would undermine the plan-making process by predetermining decisions about the scale, location or phasing of new development that are central to an emerging plan; and

the emerging plan is at an advanced stage but is not yet formally part of the development plan for the area."

Paragraph 116 of the NPPF, referring to the consideration of development proposals, states the following:

"Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual

cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenarios."

Paragraph 165 of the NPPF, referring to planning for climate change, states the following:

"To help increase the use and supply of renewable and low carbon energy and heat, plans should:

a) provide a positive strategy for energy from these sources, that maximises the potential for suitable development, and their future re-powering and life extension, while ensuring that adverse impacts are addressed appropriately (including cumulative landscape and visual impacts);"

Paragraph 198 of the NPPF, referring to ground conditions and pollution, states the following.

"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;

b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and

c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation."

Paragraph 199 of the NPPF in consideration of air pollution, states the following:

"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, considering the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement."

Paragraph 224 part (b), states that when determining planning applications, the LPA should:

"ensure that there are no unacceptable adverse impacts on the natural and historic environment, human health or aviation safety, and take into account the cumulative effect of multiple impacts from individual sites and/or from a number of sites in a locality;"

16.9.1.4 LOCAL PLANNING POLICY

Local planning policy relevant to cumulative impact will be identified and drawn from the Northumberland Local Plan 2016-2036. Key Policies include:

- Policy QOP 2 Good design and amenity;
- Policy TRA 2 The effects of development on the transport network;
- Policy ENV 3 Landscape;
- Policy WAT 4 Sustainable Drainage Systems;
- Policy POL 2 Pollution and air, soil and water quality;
- Policy REN 1 Renewable and low carbon energy and associated energy storage; and
- Policy REN 2 Onshore wind energy development.

The Northumberland National Park Local Plan adopted in 2020 key policies include;

- Policy DM 11 Landscape, Tranquilly and Dark Night Skies.

16.9.1.5 GUIDANCE

The assessment of cumulative effects will be undertaken with reference to relevant good-practice guidance. In particular, the IEMA Impact Assessment Outlook Journal: Volume 7 Demystifying Cumulative Effects Thought Pieces from UK Practices[443] provides current advice on the consideration of cumulative effects in EIA. Planning Inspectorate Advice Note 17 provides advice on cumulative effects assessment in the NSIP context.

16.9.2 BASELINE CONDITIONS AND KEY SENSITIVITIES

Please refer to **Section 2.2** of the Report for details on general Site Context.

16.9.3 POTENTIAL IMPACTS AND LIKELY SIGNIFICANT EFFECTS

There is currently no standard EIA methodology for assessing cumulative effects. However, ISEP recognises two types of cumulative assessment relevant to EIA in their guidance, which are:

[443] IEMA (2020) Impact Assessment Outlook Journal Volume 7 Demystifying Cumulative Effects Thought pieces from UK practice. Available online at: https://www.iema.net/media/nbsdjhlf/ia-outlook-journal-vol-7.pdf

- Intra-project effects - These effects occur where a single receptor is affected by more than one source of effect arising from different aspects of the project. An example of an intra-project effect would be where a local resident is affected by dust, noise, and traffic disruption during the construction of a scheme, with the combined result being the potential for a greater impact than each individual effect alone; and,
- Inter-project effects – These effects occur as a result of a number of developments, which individually might not be significant, but when considered together could create a significant cumulative effect on a shared receptor and will include developments separate from and related to the project.

16.9.4 ASSESSMENT METHODOLOGY

The proposed methodology will be prepared in line with guidance and standards listed in **Section 16.9.1.**

Detailed consideration of inter-project effects has been undertaken for all relevant technical assessments and will be included in the relevant ES Report chapters.

The methodology for assessing intra-project effects involves the identification of impact interactions associated with the construction, operation and decommissioning phases of the Proposed Development upon one or more receptors. This is undertaken using a qualitative appraisal process, which will be detailed within the Other Issues Chapter of the ES.

A receptor with multiple effects which have been individually assessed as being above the level of perceptibility (i.e., Minor or above), could still be affected significantly due to the combination of one or more other perceptible effects. The intra-project assessment considers all effects (adverse and beneficial) which have been assessed as Minor (which, taken individually, is not significant in EIA terms), Moderate, or Major.

The approach adopted for this intra-project assessment is to examine in turn each residual effect for each individual receptor. These are presented as the Stage 1 assessment. It is then identified if multiple effects are experienced at an individual receptor and if so, using professional judgement, whether this could give rise to a significant intra-project effect to that receptor. This is presented as the Stage 2 assessment.

16.9.5 PROPOSED SCOPE OF THE ES CHAPTER

The potential for significant intra-project cumulative effects cannot be ruled out based on the information available. As such, intra-project cumulative effects will be **scoped in** to the EIA and assessed within a separate chapter, following the methodology outlined above.

Inter-project cumulative effects are also **scoped in** to the EIA, but these will be assessed within each relevant technical chapter of the EIA Report, in line with discipline-specific methodologies. This avoids duplication and ensures cumulative effects are considered using appropriate receptor-specific parameters.

A list of schemes to be considered in the inter-project cumulative assessment will be compiled in consultation with NCC and the Planning Inspectorate prior to ES preparation, setting out the basis for identifying the cumulative schemes. The adjacent Ray Wind Farm will be included in the inter-project cumulative baseline as an existing development.

See **Table 16.7** for a summary of topics pertaining to Other Issues to be scoped in to and scoped out of further assessment. Unless otherwise stated, the scoping positions set out in **Table 16.7** apply to the construction, operation and decommissioning phases of the Proposed Development.

Where relevant, scoping positions distinguish between the wind turbine elements of the Proposed Development and associated Cable Corridor Options infrastructure. Topics for which no impact pathway exists for the Cable Corridor Options (e.g. shadow flicker, telecommunications interference) are explicitly noted.

16.10 SCOPE OF ES REPORT

Table 16.7 contains a list of all environmental factors relating other issues that will be scoped in and scoped out of the assessment.

TABLE 16.7 ENVIRONMENTAL FACTORS TO BE SCOPED IN OR OUT OF THE ASSESSMENT

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
Telecommunications	Scoped in	An initial assessment by Pager Power (August 2025) identified safeguarded fixed links operated by Airwave, JRC, MBNL and Virgin Media O2 within consultation distance of the Site. Further detailed assessment and consultation with operators is required to confirm whether any wind turbine locations may interact with these assets; therefore telecommunications effects relating to the wind turbines are scoped in to the EIA. The Cable Corridor Options and BESS comprise static infrastructure with no moving components and minimal potential for radio-frequency interference, and telecommunications effects associated with these elements are therefore scoped out. If subsequent design refinement confirms that all safeguarding requirements are fully accommodated, with confirmation through consultation with the appropriate consultees, the scope may be revisited prior to ES submission.
Utilities	Scoped out	Utilities are proposed to be scoped out of the EIA, as any interactions with existing water, gas or electricity infrastructure are expected to be fully addressed through standard design avoidance and construction-phase controls, informed by desk-based asset searches and consultation with statutory undertakers.
Aviation: Radar (Civil and Military)	Scoped in	Pager Power's initial assessment indicates that turbines may be detectable by Spadeadam ATC radar, Newcastle Airport radar and the NATS Great Dun Fell radar. Technical

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
		mitigation is likely to be required. Until consultation confirms safeguarding requirements, radar effects are scoped in to the EIA.
Aviation: Low Flying Areas and Danger Areas	Scoped in	The Site lies within MoD Low Flying Areas 12 and 20T and is located close to the Otterburn and Ridsdale Danger Areas. As low-flying military aircraft may operate in proximity to the Proposed Development, this topic is scoped in.
Aviation: Aircraft Operations (VFR / IFR)	Scoped in	Wind turbines may present physical obstacles for aircraft operating under visual and instrument flight rules. Interactions will be assessed through consultation with MoD, NATS and Newcastle Airport.
Aviation: Helicopter Operations	Scoped in	Helicopter operations associated with civil, military or emergency services may be influenced by turbine location and obstacle lighting
Aviation: Aerodromes (Licensed and Unlicensed)	Scoped out	No licensed or unlicensed aerodromes lie within relevant safeguarding distances, and no Obstacle Limitation Surfaces or Instrument Flight Procedure protection surfaces are intersected. No credible impact pathway exists; therefore, this topic is scoped out.
Aviation: Meteorological Radar	Scoped out	The Site lies outside Met Office radar safeguarding distances, and no impact mechanism exists.
Aviation: Airspace and Instrument Flight Procedures	Scoped out	The Proposed Development is located outside controlled airspace structures and published IFP protection zones. No interaction with airspace procedures is expected.

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
Aviation: Lighting	Scoped out	Aviation lighting requirements will be identified through the aviation assessment; however, the landscape and visual effects of aviation lighting will be assessed as part of the LVIA (**Chapter 6**).
Shadow Flicker: Receptors within 10x rotor diameter	Scoped in	Potential receptors (predominantly residential properties) are located within a distance equal to ten times the rotor diameter from the turbine locations, and therefore shadow flicker effects may occur. Shadow flicker effects arise from turbine operation only; the grid connection will not give rise to shadow flicker and is scoped out.
Shadow Flicker: Receptors beyond 10x rotor diameter	Scoped out	Properties located beyond ten rotor diameters do not have a plausible impact pathway and are not likely to experience shadow flicker.
Air Quality	Scoped out	Construction traffic volumes are expected to remain below LAQM TG22 screening thresholds, and dust emissions can be controlled through standard OCEMP measures. With no operational emission sources, significant air quality effects are unlikely, and decommissioning effects are likely to be similar to construction. Therefore, air quality is scoped out.
Forestry	Scoped in	Areas of woodland will need to be felled for the construction and operation of the wind turbines and associated infrastructure (including grid connection) for the Proposed Development. Additional areas of woodland may also need to be felled for environmental and/or technical reasons, such as felling to create windfirm edges.

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
Human Health	Scoped out	Potential effects on human health (e.g. noise, air quality, traffic, water environment, socio-economics) will be fully addressed within the relevant technical chapters of the EIA. No additional significant effects are anticipated, and a standalone Human Health chapter is not required.
Major Accidents and Natural Disasters	Scoped out	The Scoping Boundary is not prone to natural disasters, and major accident risks are managed through established legislation, design standards and operational controls. Due to climate change, there is an increased risk of wildfire and windstorm, these risks will also be addressed through embedded mitigation and operational controls. No significant environmental effects are expected.
Intra-project Cumulative Effects	Scoped in	The potential for intra-project cumulative effects cannot be ruled out with the information currently available and will therefore be assessed as a separate chapter in line with the EIA Regulations.
Inter-Cumulative Effects	Scoped in	Inter-cumulative effects must be considered in accordance with the EIA Regulations and will be assessed within each technical chapter of the EIA Report.

16.11 CONSULTATION AND SCOPING QUESTIONS

- Q16.1 – Telecommunications and Utilities

  Are consultees aware of any additional safeguarded telecommunications links, fixed wireless infrastructure or utilities stakeholders that should be taken into account as part of the EIA?

- Q16.2 – Telecommunications

  Do consultees agree that telecommunications effects should be scoped in to the EIA, based on the presence of safeguarded fixed links within consultation range and the need for further assessment and operator engagement?

- Q16.3 – Utilities

  Do consultees agree that utilities (water, gas and electricity) can be scoped out of the EIA, on the basis that any interactions will be managed through standard design avoidance and construction-phase controls, informed by desk-based asset searches and consultation with statutory undertakers?

- Q16.4 – Aviation

  Do consultees agree with the proposed items to be scoped in and scoped out of the EIA?

- Q16.5 – Aviation
  Do consultees agree with the proposed methodology of the aviation assessment, including the approach to assessing potential effects on civil and military radar, low-flying activity, and aircraft operations?

- Q16.6 – Aviation Safeguarding

  Are there any additional aviation interests, safeguarding requirements or technical assessments (e.g. Instrument Flight Procedures) that consultees consider should be addressed prior to finalising the design of the Proposed Development?

- Q16.7 – Shadow Flicker

  Do consultees agree with the proposed approach to the assessment of shadow flicker, including the use of a study area defined as ten times the rotor diameter and the application of recognised UK industry best-practice thresholds detailed in **Section 16.4.5**?

- Q16.8 – Air Quality

  Do consultees agree that air quality can be scoped out of further assessment in the EIA, given the absence of operational emissions, the low likelihood of significant construction / decommissioning traffic effects, and adherence to standard construction-phase mitigation?

- Q16.9 – Human Health

  Do consultees agree with the proposed approach to address potential effects on human health through the topic-specific technical chapters of the

EIA, and that a standalone Human Health chapter can therefore be scoped out?

- Q16.10 – Major Accidents and Disasters

  In line with the EIA Regulations, the EIA will consider the vulnerability of the Proposed Development to major accidents and disasters. The principal risks identified relate to wildfire and extreme weather events, including windstorms, which will be managed through embedded design measures, standard construction and operational controls, and relevant management plans.

  On this basis, do consultees agree that potential effects on Major Accidents and Disasters can appropriately addressed within other topic assessments, and that a standalone Major Accidents and Disasters chapter is not required within the EIA?

- Q16.11 – Cumulative Effects

  Do consultees agree with the proposed approach to cumulative effects assessment, whereby:

  - intra-project cumulative effects are assessed within a standalone chapter; and
  - inter-project cumulative effects are addressed within the relevant technical chapters using discipline-specific methodologies?

- Q16.12 – All topics

  Do consultees agree that decommissioning effects can be scoped out of the EIA based on the assumption that they are expected to be no greater than construction phase effects?

17. SUMMARY

Responses to this Scoping Report will be considered in the ES. A compilation of the Questions for Consultees listed throughout this Report is provided in **Appendix A**. A summary of the environmental factors to be **scoped in** to the ES is presented in **Table 17.1**. A summary of the environmental factors to be **scoped out** of the ES is presented in **Table 17.2**.

TABLE 17.1 ENVIRONMENTAL FACTORS TO BE SCOPED IN TO THE EIA REPORT

Technical Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
Chapter 6: Landscape and Visual Impact	Effects of the Proposed Development in relation to landscape features/landscape fabric within the Site that would be directly affected.	Key to understanding the likely significant effects of the Proposed Development on landscape features within the Site.
	Effects of the Proposed Development on the key characteristics and defining features of landscape character units within the Study Area, with a focus on landscapes within approximately 20 km of the Site, and 1 km of the Cable Corridor.	Key to understanding the likely significant effects of the Proposed Development on landscape character.
	Effects upon the special qualities of the national and local landscape designations within the Study Area.	Key to understanding the likely significant effects of the Proposed Development on designated and protected landscapes.
	Effects on views and visual amenity of residents of the nearby settlements including Elsdon, Otterburn and Bellingham	Key to understanding the likely significant effects of the Proposed Development on the views and visual amenity of people within settlements.
	Effects on views from public roads and transport routes including the A68, A696 and the A697. Effects to be considered include those experienced in combination with other wind farm developments.	Key to understanding the likely significant effects of the Proposed Development on the views and visual amenity of people travelling through the landscape.
	Effects upon views experienced by recreational receptors of long-distance	Key to understanding the likely significant effects of the Proposed Development on the

Technical Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
	routes including the Pennine Way and PRoWs that cross or are close to the Site.	views and visual amenity of long-distance recreational routes.
	Visitors to tourist attractions and visitors to outdoor recreational locations within the Study Area. These will include visitors to Hadrian's Wall and visitors to popular recreational destinations within the Northumberland National Park	Key to understanding the likely significant effects of the Proposed Development on the views and visual amenity of tourists and outdoor recreationalists.
	Nighttime/hours of darkness effects resulting from aviation lighting	Key to understanding the likely significant effects of the Proposed Development on dark sky qualities and nighttime views.
Chapter 7: Archaeology and Cultural Heritage	Direct physical impacts to Heritage Assets within the Site.	Direct physical impacts to heritage assets as a result of the Proposed Development are considered possible and would have a significant impact if identified.
	Indirect physical impacts to Heritage Assets within 1 km.	Indirect physical impacts to heritage assets as a result of the Proposed Development are considered possible and would have a significant impact if identified.
	Setting impacts to designated assets within the 15 km Study Area.	Additional assets beyond 15 km may be scoped in where: They fall within the bare earth ZTV; They have been requested for assessment by stakeholders; and/or, They have the potential to be impacted by the Proposed Development.

Technical Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
	Setting impacts to regionally and nationally important non-designated heritage assets within the 5 km Study Area, with inclusion for assessment decided following consultation and sieving exercise.	Additional assets beyond 5 km may be scoped in where: They fall within the bare earth ZTV; They have been requested for assessment by stakeholders; and/or, They have the potential to be impacted by the Proposed Development.
	The Cumulative Effect of the Proposed Development in conjunction with other wind farm developments within 15 km.	Additional developments beyond 15 km may be included for assessment where: Bare earth ZTVs overlap; They have been requested for assessment by stakeholders; and/or, They have the potential to impact the setting of assets in conjunction with the Proposed Development.
Chapter 8: Ornithology	North Pennine Moors SPA (in relation to the Cable Corridor Options)	The nearest SPA to the proposed Cable Corridor Options is the North Pennine Moors SPA, which is located c. 6.5 km to the southwest of the southern connection point (i.e. Fourstones substation). This SPA is designated for several bird species listed on Annex I of the EC Birds Directive whose breeding populations, supported by the SPA, exceed national and international levels of importance, including hen harrier (*Circus cyaneus*), merlin (*Falco columbarius*), peregrine (F. peregrinus) and golden plover (*Pluvialis apricaria*). The Cable

Technical Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
		Corridor Options are outside of the core breeding range for each of these species, but within the maximum range of hen harrier, peregrine, and golden plover, based on NatureScot SPA connectivity guidance. It is likely that the connection at the southern end of the route, closest to the SPA, would be undergrounded, which would reduce the potential risk to birds in flight associated with the SPA populations. Consultation with Natural England on this aspect of the project is proposed in order to determine whether, in this context, likely significant effects on the North Pennine Moors SPA require specific consideration in the EIA.
	Key species (likely 'Important Ornithological Receptors' for the EIA, see **Table 8.2**)	The EIA will consider the range of likely significant effects from the Proposed Development (construction, operational and decommissioning phases and likely significant cumulative effects) on the populations of species listed in **Table 8.2.**
Chapter 9: Ecology and Nature Conservation	Simonside Hills SAC	Simonside Hills SAC lies 3.78 km north of the Site and is separated from the Site by a road. The Site is designated for blanket bog, and therefore due to distance from the Site and a lack of impact pathway effects to Simonside Hills SAC can be ruled out.. However, it is recognised that traffic routes/numbers/types of vehicles required

Technical Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
		during construction is not yet known and thus will be considered once this information is available. Therefore Simonside Hills SAC has been scoped in to the assessment.
	Tyne and Allen River Gravels SAC	Tyne and Allen River Gravels SAC lies 1.26 km south of Fourstones substation and is designated for calaminarian grasslands of the *Violetalia calaminariae*. The Site lies to the south of the Proposed Development, and upstream of any likely significant effects to the River South Tyne, consequently, there is no impact pathway and likely significant effects to Tyne and Allen River Gravels SAC are not anticipated. However, it is recognised that traffic routes/numbers/types of vehicles required during construction is not yet known and thus will be considered once this information is available. Therefore Tyen and River Gravels SAC is scoped in to the assessment.
	New Scroggs SSSI	New Scroggs SSSI lies within the Cable Corridor Options and so likely significant effects to the SSSI cannot be ruled out. Consultation will be required with Natural England. New Scroggs SSSI is scoped in to the assessment.

Technical Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
	Bats	Five species of bats have been confirmed as using the Site following surveys undertaken in 2023, furthermore several trees and a series of World War II pillboxes were recorded as holding suitability for roosting bats. No surveys have been undertaken of the Cable Corridor Options. Therefore, there is potential for bats to be affected by the Proposed Development and bats are scoped in to the assessment.
	Amphibians (including GCN)	eDNA results for GCN surveys of ponds within the Sitewere negative indicating GCN are absent. However, access was not practicable to ponds outside the Site boundary and surveys have not been undertaken of the Cable Corridor Options. Therefore, there is potential for GCN to be affected by the Proposed Development and at this stage, GCN are scoped in to the assessment.
	Reptiles	Adder and common lizard have both been recorded within the Site, in open moorland near Ottercops and Mount Gilbert, and no surveys have been undertaken of the Cable Corridor Options; therefore, reptiles could be affected by the Proposed Development and are scoped in to the assessment.

Technical Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
	Otter	Otter evidence, including a potential resting site has been recorded within the Site, and no surveys for otter resting places have been undertaken of the Cable Corridor Options. Therefore, otters could be affected by the Proposed Development and are scoped in to the assessment.
	Badger	Evidence of badger has been found across the Site, including badger setts and no surveys for badger surveys have been conducted within the Cable Corridor Options. Therefore, badger could be affected by the Proposed Development and are scoped in to the assessment.
	Red Squirrel	Red squirrel has been recorded on wildlife cameras in Raylees, Yearhaugh and Wishaw plantations and have thus been confirmed within the Site. No surveys have been undertaken of the Cable Corridor Options, and red squirrel could be affected by the Proposed Development, consequently red squirrel are scoped in to the assessment.
	Water Vole	A water vole was seen in Ottercops Burn during the Fish Habitat Survey, and thus water vole has been confirmed within the Site. Though no surveys have been undertaken of the Cable Corridor Options, with the commitment to either HDD under

Technical Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
		watercourses, or if an OHL is constructed committing to place infrastructure at least 15 m from watercourses, the cable will not impact water vole. However, as water vole has been found in the Site, water vole could be affected by the Proposed Development and is scoped in to the assessment.
	Pine Marten	There was one historic record of pine marten returned within 10 km of the Site boundary, from 1960. Pine martens are usually associated with woodlands, and their dens are usually within hollow trees, among rocks, or in disused bird nests or squirrel dreys[444]. The woodland, heathland and grasslands within the Site is considered to provide suitable foraging habitat for pine marten, with a potential den site noted during the surveys. In addition no pine marten surveys have been undertaken of the Cable Corridor Options. Therefore there is potential for pine marten to be affected by the Proposed Development and pine marten is scoped in to the assessment.
	Peatland Habitats	The east of the Site is dominated by wetland and heathland habitats, which may include blanket bog. This habitat may confirm to HoPI or Annex I and could be affected by the

[444] The Vincent Wildlife Trust (2015) *Managing forest and woodlands for pine martens 'Practical measures to protect and benefit the pine marten'*

Technical Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
		Proposed Development; therefore, this habitat is scoped in to the assessment.
	Rivers	There are a number of watercourses within the Site, which have been subject to a MoRPH survey to inform an RCA. This data is required to inform the BNG assessment of the site. In addition, Cable Corridor Options cross several watercourses, however the Applicant is committed to either crossing watercourses by HDD at a depth of 5 m, or if an OHL is constructed placing infrastructure at least 15 m back from watercourses, as such there will be no effect to watercourses from the Cabel Corridor Options. However, as watercourses will be crossed by permanent access tracks in the Site, including the Black Burn, then rivers are scoped in to the assessment.
	Woodland	There are several areas of broadleaved woodland within the Cable Corridor Options, however the design is committed to avoiding woodland, therefore impacts to woodland are not anticipated for the grid route. However, the western part of the Site is mostly coniferous woodland, which will be affected by the Proposed Development; therefore, woodland is scoped in to the assessment.

Technical Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
	Fish	Watercourses within the Site including Binky Burn, Ottercops Burn and Black Burn have been confirmed as holding suitable habitat for juvenile salmonids, lamprey and eel, with Black Burn having areas suitable for spawning for salmonids and lamprey. Therefore, the presence of fish within the Site is likely, and as there will be several access tracks over watercourses including the Black Burn, effects on fish cannot be ruled out and so fish are scoped in to the assessment.
	White Clawed Crayfish	The watercourses within the Site are hydrologically connected to the River Rede, a major tributary of the Tyne White-clawed crayfish are known to be present within the River Rede[445]. Furthermore, watercourses within the Site, such as Binky Burn, Ottercops Burn and Black Burn were found to be suitable for white-clawed crayfish, with a dead, white-clawed crayfish being recorded on Ottercops Burn. Several watercourses within the Site, including Black Burn are to be crossed by new access tracks, and so effects to white-clawed crayfish cannot be ruled out. Therefore, white-clawed crayfish is scoped in to the assessment.

[445] Tyne Rivers Trust (n.d) [Online] Available at: https://www.tyneriverstrust.org/white-clawed-crayfish/

Technical Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
Chapter 10: Geology and Peat	Peat Stability	Peat instability is generally the result of a combination of causative factors. During the construction, operation and decommissioning phases, several project-related activities have the potential to increase the likelihood of peat slides in areas where peat is present at sufficient depth and where ground gradients are sufficiently steep to give rise to a peat slide event. Peat stability will be assessed as part of the PLHRA. The PLHRA will be informed by peat probing data and desk-based assessments, which together will be used to evaluate the stability of the substrate and the risk of peat stability-related failures within the Study Area across all project phases.
	Disturbance of Deep Peat	Where construction or decommissioning activities take place in areas underlain by peat, some disturbance of peat is likely to occur. The oPMP will identify areas of deep peat (defined as peat greater than 0.4 m in depth), and this information will be used to inform project design and construction methodology during both the construction and decommissioning phases, with the aim of minimising disturbance of deep peat as far as is reasonably practicable.
	Loss and Compaction of Peat and Soils	The loss and compaction of peat and soils could occur where development takes place

Technical Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
		in areas underlain by peat during the construction and decommissioning phases. Even where direct impacts on peat are avoided, construction and decommissioning activities have the potential to result in soil compaction. This may reduce soil permeability and increase the risk of surface water run-off and erosion. These potential effects will be assessed and, where required, mitigated through the oPMP.
	Peat as Waste Material	Where peat is disturbed during the construction and decommissioning phases, it will be reused on Site as far as is reasonably practicable. Depending on the quantities of peat excavated, areas within the Proposed Development may be required for peatland restoration. The management, reuse and restoration of peat will be set out and addressed within the oPMP.
	Mining	Given the presence of the coal mining reporting area identified along the Cable, it is recommended that a mining is assessed within the EIA.
	UXO Risk	A preliminary UXO desk study assessment will be undertaken as part of the EIA.
	Impact on Geology and Soils	Earthworks, foundations, tracks and other infrastructure have the potential to affect

Technical Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
		geology and soils. These impacts will be assessed within the EIA, taking account of baseline conditions, construction activities and decommissioning, and guided by appropriate standards and professional judgement.
	Contaminated Land	Given the historical land use and remote setting of the Study Area, the presence of contaminated land during the construction and decommissioning phases of the Proposed Development is considered unlikely. However given the historical land use, including coal mining, quarrying and landfills along the Cable Corridor Options contaminated land will be assessed within the EIA.
Chapter 11: Water Resources and Flood Risk	Surface Water Hydrology	Watercourses within the Site have the potential to be directly impacted by the Proposed Development as a result of changes to water quality and quantity, and effects may be transmitted into the wider Study Area.
	Water Framework Directive Assessment	There is one WFD watercourse (Ottercops / Hart Burn) within the Site and several within the Study Area. Some of these watercourses will need to be crossed as part of the

Technical Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
		Proposed Development which could directly impact them.
	Hydrogeology	Dewatering may be required during construction for excavations and borrow pits, and there are impacts associated with trenchless crossing methods for the cables. As such there is the potential for impacts to groundwater quality and quantity.
	Water Resources	The full extent of water resources within the Study Area is unknown at this time e.g. if there are any PWS or public water assets. The EA, Northumberland County Council, and Northumbria Water will be contacted as part of the ES to inform the updated baseline. Therefore, water resources are scoped in but the need for further assessment will be based on the results of the data gathering.
	Flood Risk Assessment (FRA)	As the Study Area is within Flood Zone 2 and 3, and at risk of surface water flooding, and reservoir flooding, a standalone FRA will be provided alongside the ES with the outcomes of the FRA summarised within the ES chapter.
	Watercourse Crossing Schedule	A number of watercourse crossings will be needed as part of the Proposed Development for on-site access tracks and cables associated with the grid connection. The

Technical Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
		watercourse crossing schedule will list the locations and provide baseline characteristics of the watercourses at crossing points.
Chapter 12: Access, Traffic and Transport	Severance of Communities during Construction	In line with the ISEP 2023 Guidelines, movements associated with the construction of the Proposed Development have the potential to result in this effect and as such will be scoped in for the assessment.
	Road Vehicle Driver and Passenger Delay during construction	In line with the ISEP 2023 Guidelines, traffic movements associated with the construction of the Proposed Development have the potential to result in this effect and as such will be scoped in for the assessment.
	Non-motorised User Delay during construction	In line with the ISEP 2023 Guidelines, traffic movements associated with the construction of the Proposed Development have the potential to result in this effect and as such will be scoped in for the assessment.
	Non-motorised Amenity during construction	In line with ISEP Guidelines, traffic movements associated with the construction of the Proposed Development have the potential to result in this effect and as such will be scoped in for the assessment.
	Fear and Intimidation on and by Road Users during construction	In line with the ISEP 2023 Guidelines, traffic movements associated with the construction of the Proposed Development have the

Technical Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
		potential to result in this effect and as such will be scoped in for the assessment.
	Road User and Pedestrian Safety during construction	In line with the ISEP 2023 Guidelines, traffic movements associated with the construction of the Proposed Development have the potential to result in this effect and as such will be scoped in for the assessment.
	Hazardous and Large Loads during construction	In line with the ISEP 2023 Guidelines, traffic movements associated with the construction of the Proposed Development have the potential to result in this effect and as such will be scoped in for the assessment.
	Transport Assessment	At the time of producing this scoping report, a TA to accompany the planning application for the Proposed Development. The TA will provide a more detailed assessment of trip generation and distribution and the ability of the surrounding highway network to accommodate increased traffic volumes.
	Decommissioning Effects	Traffic associated with decommissioning of the Proposed Development will be the same or less than that experienced during construction. On this basis, the Transport Chapter will include a proportionate assessment of decommissioning traffic effects using a reasonable maximum design scenario, informed by:

Technical Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
		• Anticipated decommissioning activities and programme duration; • Indicative HGV and abnormal load movements compared against the construction phase; • Likely re-use of the construction access strategy and agreed delivery routes; and Interaction with a future baseline transport network, assessed at a high level.
Chapter 13: Noise and Vibration	Construction and decommissioning noise	Construction noise will be assessed for the potential effects during the construction phase of the Proposed Development, including construction traffic and where applicable noise associated with the cable route.
	Operational wind farm and BESS noise	Operational noise from the wind farm, BESS, substation and associated infrastructure (including electrical hum and corona discharge noise from overhead line as necessary) will be assessed for the likely significant effects during the operational phase of the Proposed Development.
Chapter 14: Climate Change and Carbon Balance	Effects of the Proposed Development on climate change	It is possible that the Proposed Development will have a significant effect on climate change through reducing GHG emissions by renewable energy generation, and therefore a GHG Assessment will be scoped in to the EIA to assess this likely significant effect and

Technical Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
		align with National Planning Framework policy relating to carbon balance and GHG Emissions.
	Effects of climate change on assessments made in other environmental topics of the Proposed Development's ES	This effect cannot be entirely scoped out, as effects of climate change may impact baseline receptors that have been assessed in other ES chapters, thereby affecting their resilience or response to the changes associated with the Proposed Development. Therefore, this will be scoped in to further assessment, although this will be considered within individual technical chapters where relevant rather than within the Climate Change and GHG Emissions ES chapter.
	Vulnerabilities and Resilience of the Proposed Development to Climate Change	Out of the general climate change hazards identified it is proposed to scope in consideration of extreme weather events, changes in precipitation, changes in temperature, wind and wildfires into the CCRA as these hazards have the potential to impact the Proposed Development.
Chapter 15: Socioeconomics, Tourism and Recreation	Employment effects during construction and decommissioning	The construction and decommissioning of the Proposed Development will create jobs directly and in the supply chain, which could have the potential for likely significant effects within the local labour market.

Technical Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
	Employment effects during operation	The operation of the Proposed Development will create jobs directly and in the supply chain. These effects will be assessed, although operational employment levels are expected to be relatively small.
	GVA effects during construction and decommissioning	The construction and decommissioning of the Proposed Development will generate Gross Value Added (GVA) in the local and national economy, which could have the potential for likely significant effect within the local economy.
	GVA effects during operation	Operational expenditure associated with the Proposed Development will generate GVA, with the potential for likely significant effect within the local economy.
	Wider socio-economic effects during construction and decommissioning	Wider and knock-on socio-economic effects, including potential structural economic change, loss or disruption to established local industries (including tourism), have the potential to result in likely significant effects during construction and require assessment.
	Socio-cultural effects during construction and decommissioning	Changes to local demographics and the local environment associated with construction activity and the presence of an incoming construction workforce could result in effects on social infrastructure, increased demand

Technical Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
		for services, and changes in community identity and way of life.
	Direct impacts on PRoW, tourism or social infrastructure during construction and decommissioning	There is the potential that the construction and decommissioning of the Proposed Development could require temporary diversions to PRoW, or could result in disruption to users of PRoW and other tourism receptors or social infrastructure.
	Indirect impacts on PRoW, tourism or social infrastructure during construction and decommissioning	There is the potential for the construction and decommissioning of the Proposed Development to result in indirect effects on PRoW, tourism receptors or social infrastructure such as effects on amenity arising from a combination of noise, visual, traffic, or air quality impacts.
	Indirect impacts on PRoW, tourism or social infrastructure during operation	There is the potential that the operational phase of the Proposed Development could result in indirect effects on PRoW, tourism receptors or social infrastructure such as effects on amenity arising from a combination of noise and visual effects.
	Housing and accommodation effects during construction	A proportion of the construction workforce is likely to be drawn from outside the Neighbourhood Study Area, which may result in increased demand for short-term accommodation and housing within nearby settlements.

Technical Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
Chapter 16: Other Issues	Telecommunications	An initial assessment by Pager Power (August 2025) identified safeguarded fixed links operated by Airwave, JRC, MBNL and Virgin Media O2 within consultation distance of the Site. Further detailed assessment and consultation with operators is required to confirm whether any wind turbine locations may interact with these assets; therefore telecommunications effects relating to the wind turbines are scoped in to the EIA. The Cable Corridor Options and BESS comprise static infrastructure with no moving components and minimal potential for radio-frequency interference, and telecommunications effects associated with these elements are therefore scoped out. If subsequent design refinement confirms that all safeguarding requirements are fully accommodated, with confirmation through consultation with the appropriate consultees, the scope may be revisited prior to ES submission.
	Aviation: Radar (Civil and Military)	Pager Power's initial assessment indicates that turbines may be detectable by Spadeadam ATC radar, Newcastle Airport radar and the NATS Great Dun Fell radar. Technical mitigation is likely to be required. Until consultation confirms safeguarding

Technical Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
		requirements, radar effects are scoped in to the EIA.
	Aviation: Low Flying Areas and Danger Areas	The Site lies within MoD Low Flying Areas 12 and 20T and is located close to the Otterburn and Ridsdale Danger Areas. As low-flying military aircraft may operate in proximity to the Proposed Development, this topic is scoped in.
	Aviation: Aircraft Operations (VFR / IFR)	Wind turbines may present physical obstacles for aircraft operating under visual and instrument flight rules. Interactions will be assessed through consultation with MoD, NATS and Newcastle Airport.
	Aviation: Helicopter Operations	Helicopter operations associated with civil, military or emergency services may be influenced by turbine location and obstacle lighting
	Shadow Flicker: Receptors within 10x rotor diameter	Potential receptors (predominantly residential properties) are located within a distance equal to ten times the rotor diameter from the turbine locations, and therefore shadow flicker effects may occur. Shadow flicker effects arise from turbine operation only; the grid connection will not give rise to shadow flicker and is scoped out.
	Forestry	Areas of woodland will need to be felled for the construction and operation of the wind

Technical Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
		turbines and associated infrastructure (including grid connection) for the Proposed Development. Additional areas of woodland may also need to be felled for environmental and/or technical reasons, such as felling to create windfirm edges.
	Intra-project Cumulative Effects	The potential for intra-project cumulative effects cannot be ruled out with the information currently available and will therefore be assessed as a separate chapter in line with the EIA Regulations.
	Inter-Cumulative Effects	Inter-cumulative effects must be considered in accordance with the EIA Regulations and will be assessed within each technical chapter of the EIA Report.

TABLE 17.2 ENVIRONMENTAL FACTORS TO BE SCOPED OUT OF THE EIA REPORT

Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
Chapter 6: Landscape and Visual Impact	Consideration of landscape and visual receptors beyond 20 km of the proposed wind turbines	Effects on landscape and visual receptors beyond 20 km of the proposed turbines are unlikely to be significant due to distance and likely limited influence on perception of the landscape and on views and visual amenity.
	Consideration of cumulative landscape and visual effects resulting from cumulative	Cumulative effects on landscape and visual receptors beyond 20 km of the proposed turbines are unlikely to be significant due to

Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
	developments beyond 20 km of the proposed turbines	distance and likely limited influence on perception of the landscape and on views and visual amenity..
	Consideration of cumulative developments with fewer than three turbines, or less than 50 m in height, unless located within 5 km of the proposed turbines.	Cumulative effects resulting from these developments in combination with the Proposed Development are unlikely to be significant due to the scale of the development.
	Consideration of landscape and visual receptors within 20 km of the proposed wind turbines with no or limited visibility of the proposed turbines.	Effects on landscape and visual receptors within 20 km of the proposed turbines with no or limited visibility are unlikely to be significant.
	Consideration of effects on residential visual amenity for residential receptors beyond 2 km of the proposed turbines.	Effects are unlikely to reach the residential visual amenity threshold beyond 2 km.
Chapter 7: Archaeology and Cultural Heritage	Assessment of the direct physical impacts to heritage assets outwith the Site and Cable Corridor Options, with the exception of designated assets such as bridges along transport routes.	No direct physical impacts to heritage assets are expected to occur outside Site boundaries as there is not expected to be any project activity occurring outside the Site boundaries. On that basis, this has been scoped out of the EIA.
	Indirect physical impacts to heritage assets outwith the 1 km Study Area, with the exception of designated assets such as bridges along transport routes.	No indirect physical impacts to heritage assets are expected to occur outside 1 km Study Area as the infrastructure and construction activities associated with the Proposed Development would not be anticipated to generate any ground

Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
		disturbance that would result in an indirect effect on heritage assets. On that basis, this has been scoped out of the EIA.
	Setting impacts to non-designated heritage assets of Local Importance (as defined by the HER).	No setting impacts to heritage assets are expected to occur to non-designated assets. On that basis, this has been scoped out of the EIA.
	Setting impacts to designated heritage assets between 5 and 15 km from the Site where they do not meet the selection criteria.	These receptors do not meet the criteria which would require them to be scoped in to further assessment, and there is therefore likely to be little to no impact on the receptors described.
	Setting impacts to Grade II* and II Listed Buildings beyond 5 km where they are located within or clearly associated with nucleated settlement.	These receptors do not meet the criteria which would require them to be scoped in to further assessment, and there is therefore likely to be little to no impact on the receptors described.
	Impact resulting from the Decommissioning phase of the Proposed Development.	Impacts due to decommissioning would be localised within the construction footprint of the Proposed Development and therefore no additional impacts would be anticipated to result from decommissioning.
Chapter 8: Ornithology	Northumbria Coast SPA	Based on NatureScot SPA connectivity guidance, and the distance from the Proposed Development to the Northumbria Coast SPAs there is considered to be no 'likely significant effect' on any population of

Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
		species that form the qualifying interest of the SPA. Consequently, no specific additional consideration or special are anticipated to be required in relation to the Proposed Development. Northumbria Coast SPA is therefore scoped out and will no further consideration of the likely significant effects on this SPA would be referred to within the ES.
	North Pennine Moors SPA (in relation to the Site)	Based on NatureScot SPA connectivity guidance, and the distance from the Site to the North Pennine Moors SPA, there is considered to be no 'likely significant effect' on any population of species that form the qualifying interest of any SPA. Consequently, no specific additional consideration or special are anticipated to be required in relation to the Proposed Development. North Pennine Moors SPA is therefore scoped out and will no further consideration of the likely significant effects on this SPA would be referred to within the ES.
	Common woodland bird species or widespread moorland species such as skylark (*Alauda arvensis*) and meadow pipit (*Anthus pratensis*)	The EIA will not consider likely significant effects from the Proposed Development on common woodland bird species or widespread moorland species such as skylark and meadow pipit. Guidance from NatureScot (2025) suggests that surveys for common passerines are generally not

Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
		required for EIA of onshore wind farms. The potential for significant adverse effects to occur to these species even in a sub-regional / local population context (i.e. adverse effects that could result in meaningful changes to population size, distribution or important metrics, such as annual mortality rates,) is considered to be negligible.
Chapter 9: Ecology and Nature Conservation	Wharmley Riverside SSSI	Wharmley Riverside SSSI lies 720 m south of the Site, and is designated for lowland calaminarian grasslands, due to distance and separation from the Site, effects to Wharmley Riverside SSSI are not anticipated and Wharmley Riverside SSSI can be scoped out of the assessment. However, it is recognised that traffic routes/numbers/types of vehicles required during construction is not yet known and thus will be considered once this information is available.
	Gunnerton Nick SSSI	Gunnerton Nick SSSI lies approximately 1.09 km from the Site and is notified for lowland calcareous grassland and lowland dry acid grassland. Due to distance and separation from the Site no impacts and likely significant effects are anticipated. Therefore, Gunnerton Nick SSSI is scoped out of the assessment. However, it is recognised that traffic routes/numbers/types of vehicles required during construction is not yet

Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
		known and thus will be considered once this information is available.
	Tyne Watersmeet SSSI	Tyne Watersmeet SSSI is located 1.94 km south of the Site and is hydrologically connected to the Site. However, as there is commitment from the Applicant to either undertake HDD at a depth of 5 m if the cable is undergrounded, or if OHL to set back infrastructure at least 15 m back from the watercourse, effects to watercourses can be ruled out and effects to Tyne Watersmeet SSSI are not anticipated. Therefore, Tyne Watersmeet SSSI can be scoped out of the assessment. However, it is recognised that traffic routes/numbers/types of vehicles required during construction is not yet known and thus will be considered once this information is available.
	Stonecroft Mine SSSI	Stonecroft Mine SSSI lies 3.13 km south of the Site and is designated for its population of Young's helleborine, and vascular plant assemblage; however, due to distance and separation between the Site and the Stonecroft Mine SSSI, impacts and likely significant effects to Stonecroft Mine SSSI are not anticipated and Stonecroft Mine is scoped out of the assessment. However, it is recognised that traffic routes/numbers/types of vehicles required during construction is

Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
		not yet known and thus will be considered once this information is available.
	Simonside Hills SSSI	Simonside Hills SSSI lies 3.78 km from the Site and is separated from the Site by a road. The Site is designated for its habitats including blanket bog, acidic fen, subalpine dwarf-shrub heath, upland oakwood, wet heath and wet woodland. As the Site is separated from Simonside Hills SSSI by a road and is 3.78 km from the Site there is no impact pathway between the Site and Simonside Hills SSSI. Therefore, effects to Simonside Hills SSSI can be ruled out, and Simonside Hills SSSI can be scoped out of the assessment. However, it is recognised that traffic routes/numbers/types of vehicles required during construction is not yet known and thus will be considered once this information is available.
	Mill and Whiskershiel SSSI	Mill and Whiskershiel Burns SSSI is 3.90 km north of the Site, and is dedicated for its habitats (alkaline fen, lowland calcareous grassland, mire grasslands and rush pastures) and blue moor grass. Due to the distance between the Site and Mill and Whiskershiel SSSI impacts and likely significant effects to Mill and Whiskershiel SSSI are not anticipate and Mill and Whiskershiel SSSI is scoped out of the

Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
		assessment. However, it is recognised that traffic routes/numbers/types of vehicles required during construction is not yet known and thus will be considered once this information is available.
	Billsmoor Park and Grasslees Wood SSSI	Billsmoor Park and Grasslees Wood SSSI is 4.98 km north of the Site and is designated for upland oakwood and wet woodland. Due to the distance between the Site and Billsmoor Park and Grasslees Wood SSSI no impacts are anticipated to the SSSI, and so Billsmoor Park and Grasslees Wood SSSI is scoped out of the assessment. However, it is recognised that traffic routes/numbers/types of vehicles required during construction is not yet known and thus will be considered once this information is available.
	Freshwater pearl mussel	Freshwater pearl mussel is known to be resident within the lower River Rede and North Tyne[446], and the Cable Corridor Options cross the North Tyne. However, the design commits to crossing watercourses by HDD at a depth of 5 m, if UGC is used, or where OHL is used at a watercourse crossing point, setting back infrastructure at least 15 m from the watercourses. With these commitments in place impacts to the North

[446] Tyne Rivers Trust (2026) *freshwater pearl mussel* [Online] Available at: Freshwater Pearl Mussel | Tyne Rivers Trust

Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
		Tyne are unlikely and so freshwater pearl mussel is scoped out of assessment.
Chapter 10: Geology and Peat	Cumulative effects on geology, soil and peat	Construction and decommissioning activities involving soil and peat excavation or handling represent the primary project activities with the potential to affect geology, soil and peat within the Study Area. Effects on geology, soil and peat are inherently localised, site-specific, and confined to the footprint of the Proposed Development. As there are no pathways for interaction with effects arising from other developments, cumulative effects in relation to geology, soil and peat are scoped out. Consequently, nearby developments are not anticipated to influence geology, soils or peat within the Study Area.
Chapter 11: Water Resources and Flood Risk	Designated Sites	There are no designated sites within the Study Area as such these are scoped out of further assessment.
Chapter 12: Access, Traffic and Transport	Operational Traffic	Traffic associated with the operation of the Proposed Development is limited to maintenance and is expected to be insignificant in comparison to traffic generated during construction. General maintenance and Site monitoring visits will be undertaken by car and LGVs and can be expected to be in the region of one visit per

Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
		week on average, although there may be an occasional need for an HGV delivery (and other larger size vehicles) to the Site during the operational phase to replace any of the components if required This level of traffic associated with this phase will be insufficient to trigger the threshold for assessment as set out in the ISEP 2023 Guidelines and is expected to be minimal and negligible in terms of existing traffic flow levels on routes within the vicinity of the Proposed Development. Therefore. the assessment of operational impacts is proposed to be scoped out of the Access, Traffic and Transport ES chapter.
	Air Quality	Please refer to **Chapter 16: Other Issues** relating to Air Quality, where this topic is addressed, including justification of scope and rationale for assessment (or scoping out, as applicable).
Chapter 13: Noise	Infrasound and low frequency noise	Studies show infrasound and low frequency noise do not cause adverse health effects.
	Amplitude modulation	There is currently no agreed methodology used to predict the occurrence of AM or an agreed methodology used to determine whether the effects of AM are likely to be significant.

Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
	Operational vibration	Ground borne wind turbine vibration would not be perceptible.
	Construction and decommissioning vibration	Vibration inducing activities such as piling or compacting are not expected to take place in the proximity of noise sensitive receptors.
	Operational underground cable route noise	The cable is not anticipated to generate significant noise.
	Operational traffic noise	Road traffic commuting to and from the Proposed Development is expected to be minimal.
Chapter 14: Climate Change and Carbon Balance	Vulnerabilities and Resilience of the Proposed Development to Climate Change	Consideration of sea level rise and sea temperature rise are scoped out of the EIA as the Site is not anticipated to be impacted by sea level rise, and there is no marine infrastructure included within the Proposed Development.
Chapter 15: Socioeconomics, Tourism and Recreation	Wider socio-economic effects during operation	Operational employment is expected to be relatively small and unlikely to result in significant knock-on effects for other sectors of the local economy, including tourism.
	Socio-cultural effects during operation	Operational employment is unlikely to result in significant changes to local demographics, demand for services, or pressure on social infrastructure.
	Direct impacts on PRoW, tourism or social infrastructure during operation	It is not expected that any new, direct impacts on PRoW, tourism receptors or social

Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
		infrastructure would arise during operation. Any long-term effects arising during construction and continuing into operation will be assessed as construction effects.
	Housing and accommodation effects during operation	Operational employment levels are expected to be relatively small and are unlikely to result in significant in-migration or increased demand for housing or accommodation. As such, no significant effects on the local housing or rental market are anticipated during the operational phase.
Chapter 16: Other Issues	Utilities	Utilities are proposed to be scoped out of the EIA, as any interactions with existing water, gas or electricity infrastructure are expected to be fully addressed through standard design avoidance and construction-phase controls, informed by desk-based asset searches and consultation with statutory undertakers.
	Aviation: Aerodromes (Licensed and Unlicensed)	No licensed or unlicensed aerodromes lie within relevant safeguarding distances, and no Obstacle Limitation Surfaces or Instrument Flight Procedure protection surfaces are intersected. No credible impact pathway exists; therefore, this topic is scoped out.

Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
	Aviation: Meteorological Radar	The Site lies outside Met Office radar safeguarding distances, and no impact mechanism exists.
	Aviation: Airspace and Instrument Flight Procedures	The Proposed Development is located outside controlled airspace structures and published IFP protection zones. No interaction with airspace procedures is expected.
	Aviation: Lighting	Aviation lighting requirements will be identified through the aviation assessment; however, the landscape and visual effects of aviation lighting will be assessed as part of the LVIA (**Chapter 6**).
	Shadow Flicker: Receptors beyond 10x rotor diameter	Properties located beyond ten rotor diameters do not have a plausible impact pathway and are not likely to experience shadow flicker.
	Air Quality	Construction traffic volumes are expected to remain below LAQM TG22 screening thresholds, and dust emissions can be controlled through standard OCEMP measures. With no operational emission sources, significant air quality effects are unlikely, and decommissioning effects are likely to be similar to construction. Therefore, air quality is scoped out.

Chapter	Receptor/Assessment/Effect	Rationale/Other Comments
	Human Health	Potential effects on human health (e.g. noise, air quality, traffic, water environment, socio-economics) will be fully addressed within the relevant technical chapters of the EIA. No additional significant effects are anticipated, and a standalone Human Health chapter is not required.
	Major Accidents and Natural Disasters	The Scoping Boundary is not prone to natural disasters, and major accident risks are managed through established legislation, design standards and operational controls. Due to climate change, there is an increased risk of wildfire and windstorm, these risks will also be addressed through embedded mitigation and operational controls. No significant environmental effects are expected.

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