Neshion Energy Park

Environmental Impact Assessment Report

Volume 2: Main Report

June 2026

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Glossary

Term	Definition
Amplitude Modulation	A variation in noise level over time; for example observers may describe a 'whoosh whoosh' sound, which can be heard close to a turbine as the blades sweep past.
Aquifer	A geological formation (rock or superficial deposit) that can store and transmit usable quantities of groundwater.
Associative Characteristics	How an asset or place relates to people, practices, events and/or historic and social movements.
Background Noise	The noise level rarely fallen below in any given location over any given time period, often classed according to daytime, evening or night-time periods. The L_{A90} indices (see below) is often used to represent the background noise level.
Conservation Area	An area of special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance, designated under the Planning (Listed Buildings and Conservation Areas) Act (Scotland) 1997.
Cultural Significance/Cultural Heritage Value	The aesthetic, historic, scientific, social, or spiritual value for past, present or future generations. The sum of the cultural and natural heritage values of a place, often set out in a statement of significance.
Cumulative Effects	Effects arising from the additional changes to the landscape or visual character caused by a development when seen in conjunction with other developments (associated with it or separate to it). See in-addition and in-combination cumulative effects entries, below.
Daytime Hours	07:00 to 23:00 every day
Decibel	The ratio between the quietest audible sound and the loudest tolerable sound is a million to one in terms of the change in sound pressure. A logarithmic scale is used in noise level measurements because of this wide range. The scale used is the decibel (dB) scale which extends from 0 to 140 decibels (dB) corresponding to the intensity of the sound level.
Designated Historic/Heritage Asset	A World Heritage Site, Scheduled Monument, Inventoried Battlefield, Inventoried Garden and Designed Landscape, Listed Building, Protected Wreck Site or Conservation Area designated as such under the relevant legislation.
Ecological Impact Assessment	The process of identifying, quantifying and evaluating potential effects of development-related or other proposed actions on habitats, species and ecosystems.
Element	A component part of the landscape (e.g. roads, hedgerows, woods).
Environmental Impact Assessment	The process of identifying, quantifying and evaluating potential effects of development-related or other proposed actions on the environment.
Environmental Impact Assessment Report	Document reporting the findings of an Environmental Impact Assessment.

Term	Definition
Ephemeral	Surface-water features (channels, flowpaths or pools) that contain flow or standing water only briefly after rain or snowmelt, and are dry for much of the year.
European Protected Species	These are species of plants and animals (other than birds) protected by law throughout the European Union (and via transposed legislation in Scotland).
Fluvial	Relating to rivers and streams, their flow, channels and the processes (erosion, transport and deposition) driven by flowing water.
Ground and Surface Water Management Plan	An action plan which identifies activities or projects needed to mitigate existing and future threats to source water quality and to improve the resilience of the water supply.
Historic Environment	All aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and deliberately planted or managed.
Historic/Heritage Asset	An identifiable component of the historic environment. It may consist or be a combination of an archaeological site, a historic building or area, historic park and garden or a parcel of historic landscape. Nationally important historic assets will normally be designated.
Hydrogeology	Describes the occurrence, distribution and movement of groundwater through soils and rock.
Hydrological Connection	Physical pathway that allows water (surface or groundwater) to move between two places so that changes at one location (flows, water level or water quality) can affect the other.
In-Addition Cumulative Effects	The In-addition cumulative effects - amounting to what extra effects there would be on the seascape, landscape and visual resource that would be attributable to the proposed development of the proposed development taken together with other existing, consented or proposed wind farms.
In-Combination Cumulative Effects	The In-combination cumulative effects - amounting to the effects of the proposed development taken together with other existing, consented or proposed wind farms.
Indirect Impacts	Impacts on the environment, which are not a direct result of the development but are often produced away from it or as a result of a complex pathway. Sometimes referred to as secondary impacts.
Institute of Acoustics Good Practice Guide	Good practice guidance specific to wind farms
Inventoried Battlefield	A list of nationally important battlefields in Scotland that are recorded on the Inventory of Historic Battlefields maintained by HES under the terms of the Ancient Monuments and Archaeological Areas Act 1979 as modified by the Historic Environment (Amendment) (Scotland) Act 2011.
Inventoried Garden and Designed Landscape	A list of specially designed landscapes in Scotland that are recorded on the Inventory of Gardens and Designed Landscapes maintained by HES under the terms of the Ancient Monuments and Archaeological Areas Act 1979 as modified by the Historic Environment Amendment Act 2011.

Term	Definition
L_{90}	Index represents the noise level exceeded for 90 percent of the measurement period and is used to indicate quieter times during the measurement period. It is often used to measure the background noise level. The $LA_{90,10min}$ is the A-weighted background noise level over a ten minute measurement sample.
Landcover	Combination of land use and vegetation that covers the land surface.
Landform	A natural feature of the earth's surface. The shape and form of the land surface resulting from combinations of geology, geomorphology, slope, elevation and physical processes.
Landscape	An area, as perceived by people, the character of which is the result of the action and interaction of natural and/or human factors.
Landscape and Visual Impact Assessment	A tool used to identify and assess the significance of and the effects of change resulting from development on both the landscape as an environmental resource in its own right and on people's views and visual amenity.
Landscape Capacity	The degree to which a particular landscape character type or area is able to accommodate change without unacceptable adverse effects on its character. Capacity is likely to vary according to the type and nature of the changes being proposed. The capacity of the landscape is derived from a combination of Landscape Character Sensitivity, Visual Sensitivity and Landscape Value.
Landscape Character	A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse. This is defined by the interactions of physical and perceived factors.
Landscape Character Type	Areas of consistent and recognisable landscape character.
Landscape Evaluation	The process of attaching value (non-monetary) to a particular landscape, usually by the application of previously agreed criteria, including consultation and third-party documents, for a particular purpose (for example, designation or in the context of an assessment).
Landscape Fabric	The physical elements and features that make up the landscape.
Landscape Factor	A circumstance or influence contributing to the impression of the landscape (e.g. scale, enclosure, elevation).
Landscape Feature	A prominent eye-catching element or landmark (e.g. church spire, wooded hilltop).
Landscape Impact	The change in the elements, characteristics, qualities and overall character of the landscape as a result of development.
Landscape Quality (or Condition)	Based on judgments about the physical state of the landscape and about its intactness. Also relates to the state of repair of individual features and elements which make up character in any one place.
Landscape Resource	The combination of elements that contribute to landscape context, character and value.

Term	Definition
Landscape Sensitivity (to a specific type of change)	The extent to which a landscape can accept change of a particular type and scale and is assessed in relation to a particular type of development. Based on a combination of susceptibility and value.
Landscape Value	The relative value or importance attached to a landscape (often as a basis for designation or recognition), which expresses commonly held national or local perception of its quality, special qualities and/or scenic beauty, tranquillity or wildness and cultural associations.
Land Use	The primary use of land, including both rural and urban activities.
L_{eq}	Is the equivalent continuous sound level, and is the sound level of a steady sound with the same energy as a fluctuating sound over the same period. It is possible to consider this level as the ambient noise encompassing all noise at a given time. The $L_{Aeq,T}$ is the A-weighted equivalent continuous sound level over a given time period (T).
Listed Building	A building of special architectural or historic interest which is included in a list compiled or approved by the UK Government.
Local Development Plan	Document setting out planning policies for a local planning authority.
Low Frequency Noise	Typically in the frequency range 20 – 200 Hz.
Methodology	The specific approach and techniques used for a given study.
Mitigation Measures	Measures including any process, activity or design process to avoid, reduce, remedy or compensate for adverse landscape and visual impacts of a development. Mitigation can also apply to the amelioration of existing adverse effects associated with existing developments/features in the landscape.
National Biodiversity Network Atlas	An online tool that provides a platform to host biological records for education and research.
National Vegetation Classification	A standard method of assessing and classifying plant communities in accordance with a published classification system.
NatureScot	The Scottish Government's central nature agency.
Night-time Hours	ETSU-R-97 defines the night-time hours as 23.00 to 07.00 every day.
Noise Immission	The sound pressure level received at a given location (e.g., the nearest dwelling).
Non-Designated Heritage Asset	A heritage asset which is not designated, usually identified by local historic environment records protected by NPF49 and local planning policy.
Outline Construction Environmental Management Plan	An Outline Construction Environmental Management Plan provides a framework from which a final Construction Environmental Management Plan (CEMP) will be developed to avoid, minimise or mitigate any construction effects on the environment.
Perceptual Aspect	Elements of the landscape which evoke a response to the senses, such as:

Term	Definition
	▪ Wildness; ▪ Remoteness; ▪ Sense of security or risk; and Tranquillity.
Photomontage	A computer-generated image, showing images of a development proposal superimposed upon photography of the existing view, to give a realistic impression of how the development would appear.
Pollution Prevention Plan	A series of plans that provide details of the measures required to reduce or eliminate risk of pollution at source.
Quiet Daytime Hours	ETSU-R-97 defines the quiet daytime hours as 18.00 to 23.00 Monday to Friday, 13.00 to 23.00 on Saturdays and 07.00 to 23.00 on Sundays.
Residential Visual Amenity	The overall quality, experience and nature of views and outlook available to occupants of residential properties, including views from gardens and domestic curtilage.
Residual Effects	Effect of development after mitigation proposals are taken into account.
Scheduled Monument	A monument which is included in the Schedule of monuments compiled and maintained by the UK Government under the Ancient Monuments and Archaeological Areas Act 1979.
Scoping	The process of identifying likely significant effects of a development on the environment – which may be carried out in a formal or informal way.
Scottish Biodiversity List	A list of animals, plants and habitats that Scottish Ministers consider to be of principal importance for biodiversity conservation in Scotland.
Scottish Environment Protection Agency	The principal environmental regulator in Scotland.
Seascape	Landscapes with views of the coast of seas, and coasts and adjacent marine environments with cultural, historical and archaeological links with each other.
Setting	The surroundings in which a historic asset is understood, experienced and appreciated, embracing present and past relationships to the surrounding landscape. Its extent is not fixed and may change as the asset and its surroundings evolve. Setting is not itself a historic asset, though land within a setting may contain other historic assets. Elements of a setting may make an adverse (diminishment) or positive (beneficial) contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral.
Setting Impacts	Potential impacts which include consideration of whether any change as a result of a development would constitute an adverse impact (diminishment) to those attributes the setting of the assets which directly contribute to their significance rather than simply being an alteration to, or addition of a new element to the existing settings of these assets. Where a new development may be located within the setting of an asset but does not diminish the significance of the asset or the ability to appreciate that significance, it may have a neutral impact.

Term	Definition
Shadow Flicker	The flickering effect caused when rotating wind turbine blades periodically cast shadows over neighbouring properties as they turn, through constrained openings such as windows.
Site of Special Scientific Interest	Those areas of land and water that are considered to best represent Scotland's natural heritage in terms of their flora, fauna, geology and/or geomorphology.
Sound Power Level	Is the sound power level. It is a measure of the total noise energy radiated by a source of noise, and is used to calculate noise levels at a distant location. The L_{WA} is the A-weighted sound power level.
Special Areas of Conservation	A site that is designated for the protection of one or more special habitats and/ or species – terrestrial or marine – listed in the Habitats Directive.
Special Landscape Area (now Local Landscape Areas)	An area designated by Shetland Islands Council for its landscape qualities, and protected by local planning policy.
Special Protection Areas	A site that is selected to protect one or more rare, threatened or vulnerable bird species listed in Annex I of the Birds Directive, or certain regularly occurring migratory species.
Species Protection Plan	A series of species (or taxa) specific protection plans that identify how a proposal may impact a protected species, provides an approach that enables works to go ahead while safeguarding the species, including requirements for protected species licencing.
Standardised Wind Speed	A wind speed measured at a height different than 10 m (generally measured at the turbine hub height) which is expressed to a reference height of 10 m using a roughness length of 0.05 for standardisation purpose (in accordance with the IEC 61400-11 standard).
Study Area	The area of relevance to this Environmental Impact Assessment (or to specific aspects of it).
Supplementary Guidance	Document that sets out guidance to support policies included within a Local Development Plan
The Proposed Development	Refers to the development for which consent is sought, the environmental impacts of which are addressed in the Environmental Statement.
Topography	The arrangement of the natural and artificial physical features of an area.
Vehicles	All classifications of vehicle using a road (Car + LGV + HGV).
Visibility Analysis	The process of identifying theoretical (based on digital modelling) and/or actual predicted areas from where any given development may be seen.
Visual Amenity	Particular composition of landscape elements that contribute to a view, or views.
Visual Effect	The consequence of change in the appearance of the landscape as a result of development, which may be positive or negative.
Visual Effects	The effects of a development proposal upon people as a result of change in view.

Term	Definition
Visual Impact	The change in the appearance of the landscape and nature of views which may be adverse or beneficial.
Visualisation	A collective term for photomontages, wireframes, and Zone of Theoretical Visibility mapping.
Wild Land Area	An area recognised by NatureScot, as the most extensive areas in Scotland where wildness is most strongly expressed.
World Heritage Site	An area recognised by UNESCO for its exceptional cultural and natural significance.
Zone of Theoretical Visibility (ZTV)	A computer-generated map indicating locations from which a development proposal may be visible.

Abbreviations

Abbreviation	Description
AD	Air Defence
ADS	Archaeology Data Service
ADT	Average Daily Traffic
agl	Above Ground Level
AIL	Abnormal Indivisible Loads
AIP	Aeronautical Information Publication
ALA	Abnormal Loads Assessment
ALGAO	Association of Local Government Archaeological Officers
AM	Amplitude Modulation
amsl	Above mean sea level
AOD	Above Ordnance Datum
BAP	Biodiversity Action Plan
BBPP	Breeding Birds Protection Plan
BBS	Breeding Bird Survey
BESS	Battery Energy Storage System
BGS	British Geological Survey
BS	British Standard
CAA	Civil Aviation Authority
CCA	Coastal Character Area
CEMP	Construction Environmental Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
CIfA	Chartered Institute for Archaeologists
CNAL	Construction Noise Assessment Location
CO2	Carbon Dioxide
COMAH	Control of Major Accident Hazards
CTMP	Construction Traffic Management Plan
CUCAP	Cambridge University Centre for Aerial Photographs
dB	Decibel
DBA	Desk-Based Assessment
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
DTM	Digital Terrain Model
EC	European Community
EcIA	Ecological Impact Assessment
ECoW	Ecological Clerk of Works

Abbreviation	Description
ECU	Energy Consents Unit
EHO	Environmental Health Officer
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EnvCoW	Environmental Clerk of Works
EPS	European Protected Species
EU	European Union
FCS	Favourable Conservation Status
ft	Feet
GDL	Garden Designed Landscape
GPG	Good Practice Guidance
GPP	Guidance for Pollution Prevention
GWDTE	Groundwater Dependant Terrestrial Ecosystems
ha	Hectares
HEPS	Historic Environment Policy for Scotland
HER	Historic Environment Record (see also SMR)
HES	Historic Environment Scotland
HGV	Heavy Goods Vehicles
HIAL	Highlands and Islands Airports Limited
HRA	Habitats Regulations Appraisal
HSE	Health and Safety Executive
Hz	Hertz
ICAO	International Civil Aviation Organisation
IFPs	Instrument Flight Procedures
IOA	Institute of Acoustics
ISEP	The Institute of Sustainability and Environmental Professionals
ISO	International Organization for Standardisation
IUCN	International Union for Conservation of Nature
JNCC	Joint Nature Conservation Committee
JRC	Joint Radio Company
km	Kilometres
kV	Kilovolt
LCT	Landscape Character Type
LDP	Local Development Plan
LFA	Low Flying Area
LFN	Low Frequency Noise
LGV	Light Goods Vehicles
LLA	Local Landscape Area

Abbreviation	Description
LLFA	Lead Local Flood Authority
LNCS	Local Nature Conservation Site
LVIA	Landscape and Visual Impact Assessment
m	Metres
m2	Square metres
m3	Cubic metres
MBNL	Mobile Broadband Network Ltd
MHPP	Mountain Hare Protection Plan
MoD	Ministry of Defence
MW	Megawatts
NAIZ	Non-Auto Initiation Zone
NAL	Noise Assessment Locations
NBN	National Biodiversity Network
NBNA	National Biodiversity Network Atlas
NCAP	National Collection of Aerial Photography
NCN	National Cycle Network
NERL	Nats En Route plc
NHZ	Natural Heritage Zone
NLS	National Library of Scotland
NML	Noise Monitoring Location
NPF4	National Planning Framework 4
NRHE	National Record for the Historic Environment
NRTF	National Roads Traffic Forecast
NSA	National Scenic Area
NSR	Noise Sensitive Receptor
NTS	Non-Technical Summary
NVC	National Vegetation Classification
OBEHMP	Outline Biodiversity Enhancement and Habitat Management Plan
OCEMP	Outline Construction Environmental Management Plan
OHMP	Outline Habitat Management Plan
OPMP	Outline Peat Management Plan
OPP	Otter Protection Plan
OS	Ordnance Survey
p.a.	Per Annum
PAN	Planning Advice Note
PCA	Peatland Condition Assessment
PLHRA	Peat Landslide Hazard and Risk Assessment
PLI	Public Local Enquiry

Abbreviation	Description
PMP	Peat Management Plan
PPP	Pollution Prevention Plan
PSR	Primary Surveillance Radar
PWS	Private Water Supplies
RBL	Re-broadcast link
RCAHMS	Royal Commission on the Ancient and Historical Monuments of Scotland
RD	Rotor Diameter
RO	Registered Organisation
RRH	Remote Radar Head
RSPB	The Royal Society for the Protection of Birds
RVAA	Residential Visual Amenity Assessment
SAC	Special Area of Conservation
SBL	Scottish Biodiversity List
SBRC	Scottish Bird Records Committee
SEPA	Scottish Environment Protection Agency
SFRS	Scottish Fire and Rescue Service
SIC	Shetland Islands Council
SICNHC	Shetland Islands Council Natural Heritage Officer
SLQ	Special Landscape Quality
SLVIA	Seascape, Landscape and Visual Impact Assessment
SM	Scheduled Monument
SMC	Scheduled Monument Consent
SMR	Sites and Monuments Record (see also HER)
SNH	Scottish Natural Heritage (now NatureScot)
SPA	Special Protected Area
SPP	Species Protection Plan
SQ	Special Quality
SSR	Secondary Surveillance Radar
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage Systems
SVT	Sullom Voe Oil Terminal
TNL	Total Noise Limit
UHF	Ultra-High Frequency
UK	United Kingdom
UNESCO	United Nations Educational, Scientific and Cultural Organization
VP	Vantage Point
VTS	Vessel Traffic Service

Abbreviation	Description
WHS	World Heritage Site
WLA	Wild Land Area
WTG	Wind Turbine Generator
ZTV	Zone of Theoretical Visibility

1 Introduction

1.1 Introduction

1.1.1 This Environmental Impact Assessment Report (EIAR) has been prepared by Ramboll UK Limited (Ramboll) on behalf of Neshion Ltd ('the Applicant') in support of an application for consent[1] to construct and operate an energy park and associated infrastructure with generation capacity of greater than 50 MW.

1.1.2 The Applicant's description of the Proposed Development is as follows:

1.1.3 Neshion Energy Park (the 'Proposed Development') is a renewable energy development situated to the east of Sullom Voe Oil Terminal (SVT) and the Shetland Gas Plant in the North Mainland of Shetland, Scotland - strategically positioned within an area that will play a central role in Shetland's transition from fossil fuels to clean energy technologies. Covering approximately 300 hectares, the Proposed Development comprises up to eight wind turbines with a maximum blade tip height of 200 m above ground level (agl), a Battery Energy Storage System (BESS), access tracks, substation and areas for habitat management.

1.1.4 If consented, the impacts of the Proposed Development go beyond clean energy generation to tackle climate change and support energy security. The Proposed Development aims to provide Shetland's first Local Energy Discount Scheme to directly contribute to fuel bill reduction. Importantly, the Proposed Development can also be a catalyst for a clean fuels transition - supporting jobs and the sustainable future operation of Shetland's energy infrastructure by providing clean electricity to the neighbouring SVT e-fuels project.

1.1.5 The Site location is shown in **Figure 1.1: Site Location (EIAR Volume 3a)**.

1.1.6 The EIAR comprises four volumes:

- Volume 1: Non-Technical Summary (NTS);
- Volume 2: Main Report;
- Volume 3a: Figures;
- Volume 3b: Visualisations; and
- Volume 4: Technical Appendices.

1.1.7 This Chapter is supported by the following figures and technical appendices:

- Volume 3a: Figures:
  - **Figure 1.1: Site Location.**
- Volume 4: Technical Appendices:
  - **Technical Appendix 1.1: Consultation Register**; and
  - **Technical Appendix 1.2: Technical Team**.

1.2 Purpose and Scope of the EIAR

1.2.1 The EIAR has been prepared to accompany an application to Scottish Ministers under Section 36 of the Electricity Act 1989[2]. The EIAR has been prepared in accordance with The Electricity

[1] An application for consent for the Proposed Development will be made to the Scottish Ministers under section 36 of the Electricity Act 1989, along with a request for a direction that planning permission be deemed to be granted under section 57(2) of the Town and Country Planning (Scotland) Act 1997 as amended.

[2] Electricity generation projects below 50MW are authorised under the Town and Country Planning (Scotland) Act, 1997. Those over 50MW are authorised under Section 36 of the Electricity Act, 1989.

Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (herein referred to as the 'EIA Regulations'). The EIAR has been prepared to meet the requirements of Schedule 4 of the EIA Regulations and the Institute of Sustainability and Environmental Professionals[3] (ISEP) Quality Mark Criteria.

1.2.2 The Proposed Development for which the applicant is seeking consent is as follows:

1.2.3 The erection and 40-year operation of Neshion Energy Park comprising up to eight wind turbines, each with a maximum overall height to vertical blade tip of 200 m, together with ancillary development including internal transformers and related switchgear at each turbine; associated wind turbine foundations and hardstanding areas; an on-site substation compound including a control building; a BESS compound of approximately 0.5 ha; underground power cables; development access tracks, watercrossings and site entrances; temporary construction compounds, laydown areas, borrow pits and concrete batching plant (as further described in **Chapter 2: Description of Proposed Development (EIAR Volume 2)**). The main access point into the Proposed Development is anticipated to be from the Shetland Gas Plant Road to the west of the Site, which provides access from the B9076.

1.2.4 While the application for consent is for the elements of the Proposed Development set out in outline in paragraph 1.2.3, there would be a need for an associated development of additional electricity connection infrastructure in order to export electricity generated from the Proposed Development. The Proposed Development would potentially have both a 'private-wire' connection to the neighbouring Sullom Voe Terminal to supply a low carbon fuel plant at the terminal, and a connection to the electricity grid. The details of both connections are currently unknown; however, to assess the combined effects of the proposed energy park and the associated connection infrastructure for the purposes of the EIA, **Technical Appendix 2.4: Electricity Connection Infrastructure Appraisal (EIAR Volume 4)** provides further details. All necessary consents for the connection infrastructure would be the subject of a separate process.

1.3 Other Planning Documents

1.3.1 The Application is accompanied by the following documents that do not form part of the EIAR:

- Planning Statement;
- Design and Access Statement;
- Socio-economic Statement; and
- Pre-Application Consultation Report.

1.4 The Applicant

1.4.1 Neshion Ltd is a joint venture set up between local families to develop a renewable energy project known as Neshion Energy Park (the Proposed Development).

1.4.2 The development of Neshion Energy Park is being led by the Shetland Aerogenerators Development Team. Shetland Aerogenerators Ltd is an experienced local renewable energy developer and is the owner and operator of the Burradale and Luggie's Knowe Windfarms.

1.4.3 For further information about Shetland Aerogenerators visit https://www.shetlandaero.co.uk/.

[3] Formerly known as the Institute of Environmental Management and Assessment (IEMA).

1.5 EIA Process

1.5.1 EIA is a process that identifies the potential environmental effects (both beneficial and adverse) of a proposed development and proposes mitigation to avoid, reduce and offset any adverse environmental effects.

1.5.2 The Proposed Development is of a type listed in Schedule 2 of the EIA regulations (item (1) "a generating station"). On the basis that "*the development is likely to have significant effects on the environment by virtue of factors such as its nature, size or location*" an Environmental Impact Assessment (EIA) is required. In this case, the Applicant has volunteered to undertake an EIA rather than request a formal screening opinion.

1.5.3 The key stages in the EIA process adopted for the Proposed Development are summarised below.

Scoping

1.5.4 The Applicant submitted a request for a Scoping Opinion to Scottish Ministers in March 2025. This request was accompanied by a Scoping Report, prepared by Ramboll UK on behalf of the Applicant, which set out a summary of the proposals; identified the likely significant environmental effects, and summarised the proposed scope of the EIA.

1.5.5 A Scoping Opinion was received from the Energy Consents Unit (ECU) on behalf of Scottish Ministers on 27th June 2025. The contents of this and other consultation responses received are summarised in **Technical Appendix 1.1: Consultation Register (EIAR Volume 4)**, along with a list of all bodies consulted during the scoping exercise.

1.5.6 In addition to seeking a Scoping Opinion, the Applicant conducted two community engagement events to seek the views of the local community. The events were held, as follows:

- 27th March 2025, Mossbank Public Hall; and
- 23rd September 2025, Mossbank Public Hall.

1.5.7 A summary of the representations received during the community engagement events is provided in the **Pre-Application Consultation Report** which accompanies this Section 36 application.

1.5.8 Further detail on the key issues identified through the scoping and consultation process are described in **Chapter 3: Design Evolution and Alternatives (EIAR Volume 2)**.

1.5.9 Following scoping and baseline characterisation, the EIAR provides an impact assessment chapter for each of the following topics:

- seascape, landscape and visual amenity;
- cultural heritage;
- ecology;
- ornithology;
- hydrology, hydrogeology, geology and soils;
- noise;
- traffic and transport;
- aviation;
- telecommunications; and
- shadow flicker.

Topics Scoped Out

1.5.10 During the scoping process several issues were identified as not being likely to cause significant effects on the environment as a result of the Proposed Development. These issues are described below.

AIR QUALITY

1.5.11 The Proposed Development is not considered likely to give rise to significant effects on air quality. There is potential for localised and temporary construction related air quality effects associated with construction works (e.g. dust from soil stripping and earthworks, from excavation, potentially including occasional blasting, and from vehicles running over unsurfaced ground) and exhaust emissions from fixed and mobile construction plant and construction vehicles. However, the nature of construction activities is that these would be localised, short term, intermittent and controllable through the application of good construction practice. Fixed and mobile plant would also be limited in size and number, and would operate for short periods.

1.5.12 The potential for nuisance effects on residential or recreational amenity would be limited and would be strictly controlled in accordance with a detailed Construction Environmental Management Plan (CEMP). An Outline CEMP is included in **Technical Appendix 2.1: Outline Construction Environmental Management Plan (OCEMP) (EIAR Volume 4)**. Once operational, the only source of emissions would be from occasional maintenance vehicles, and accordingly any impacts would be negligible. On this basis, there is no potential for significant construction or operational air quality effect, and therefore no Air Quality assessment has been undertaken as part of the EIAR.

CLIMATE CHANGE

1.5.13 The Proposed Development itself would contribute positively to climate change mitigation through the production of renewable energy and a corresponding reduction in carbon emissions from other more carbon intensive generation sources.

1.5.14 However, it is acknowledged that the Proposed Development would still give rise to carbon emissions associated with its construction. Accordingly, a Carbon Balance assessment has been prepared and submitted as a Technical Appendix to the EIAR (**Technical Appendix 2.3: Carbon Balance Assessment (EIAR Volume 4)**). The report includes a calculation of the expected carbon savings over the lifetime of the Proposed Development and is presented using the latest version of the Scottish Government's Carbon Calculator Tool[4]. This remains the suitable standardised tool for use in relation to net carbon saving calculations for wind farm developments across the UK.

1.5.15 The assessment has been undertaken in accordance with the Scottish Government's recommended methodology[5] and presents the carbon emissions associated with ground conditions, access preparations, foundation excavations, materials used on-site, the transportation of materials and components to Site, and any other carbon loss (e.g. through the degradation of peat/peaty soils).

[4] Scottish Government Carbon Calculator Tool. Available at https://www.gov.scot/publications/carbon-calculator-for-wind-farms-on-scottish-peatlands-factsheet/ [Accessed January 2025].

[5] Nayak *et al.*, (2010) Scottish 'Calculating Carbon Savings from Wind Farms on Scottish Peatlands – A New Approach'. Available at: https://www.gov.scot/publications/calculating-carbon-savings-wind-farms-scottish-peat-lands-new-approach/ [Accessed January 2025].

1.5.16 The vulnerability of the Proposed Development to climate change has been considered as part of the design process, which considered the potential consequences of climate change (e.g. increased flood risk potential). Appropriate design mitigation measures and embedded mitigation measures would be considered as part of the detailed design and would be implemented, as necessary. Therefore, no further assessment of the vulnerability of the Proposed Development to climate change, climate change resilience has been undertaken.

1.5.17 With adoption of a climate resilient design and the assessment of key environmental risks associated with climate change (e.g. flood risk) as an integral part of other environmental topics, no standalone assessment of climate resilience has been undertaken as part of the EIAR.

POPULATION AND HUMAN HEALTH

1.5.18 The EIAR considers "human health" in terms of amenity through the assessment of potential likely significant effects associated with private water supplies, noise, traffic, visual amenity and shadow flicker. No other sources or pathways for effects on human health have been identified.

1.5.19 The potential for likely significant effects on "population" is considered within the Socio-economic Statement that accompanies this Section 36 application.

1.5.20 Appropriate control measures to ensure potential effects on air, noise and water quality are managed appropriately in the construction phase are addressed through an outline CEMP (**Technical Appendix 2.1: Outline Construction Environmental Management Plan (OCEMP) (EIAR Volume 4)**).

1.5.21 As such, a separate human health impact assessment chapter and a population impacts assessment chapter have not been presented in the EIAR.

SOCIO-ECONOMICS AND TOURISM

1.5.22 A standalone **Socio-economic Statement** has been submitted as part of this application to evaluate the Proposed Development against the policy requirement set out in National Planning Framework 4 (Policy 11c): "*Development proposals will only be supported where they maximise net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities*".

1.5.23 The Proposed Development is a strategically important renewable energy development for Shetland that would deliver benefits extending beyond electricity generation alone. Located next to SVT, the Proposed Development would provide over 50 MW of renewable generation and associated battery storage in a location with exceptional wind resource and proximity to major industrial demand. In doing so, it would contribute to Scotland's net zero, energy security and just transition objectives, while also creating a platform for wider decarbonisation and economic transition activity in Shetland. The Proposed Development is therefore significant not only because of the clean electricity it would generate, but because of the role it could play in enabling lasting socio-economic value for the islands.

1.5.24 The key benefits the Proposed Development would bring in regard to socio-economics relate to:

- The Proposed Development providing over 50 MW of renewable generation and associated battery storage, while also acting as enabling infrastructure for Shetland's wider energy transition;

- Supporting the decarbonisation of SVT by contributing to the terminals longer-term transition;
- Providing strong socio-economic contribution via an increase in jobs and gross value;
- Retaining value in Shetland via local supply chains, skills and workforce commitments; and
- Direct community benefits via a proposed Local Energy Discount Scheme alongside community benefit and ownership opportunities.

1.5.25 For further information in regard to socio-economics refer to the standalone **Socio-economic Statement**.

1.5.26 In respect of tourism and recreation, there are a number of assessments that assess the impacts of wind farms specifically on tourism. Research[6] suggests that there is no evidence that the presence of wind farm developments have an adverse effect on the tourism sector in Scotland, and no direct relationship has been found between the development of onshore wind farms and tourism employment at national, regional and local scales. Some literature is in fact suggestive of the potential for a positive relationship to exist between tourism and wind farm development. In any case, any effects that may occur would not be expected to be significant in the context of the EIA Regulations, and therefore an assessment of tourism and recreation has not been completed as part of the EIAR.

1.5.27 The potential impacts on visual amenity for tourism and recreational locations in proximity to the Site has been assessed and is presented in **Chapter 4: Seascape, Landscape and Visual Amenity (EIAR Volume 2)**.

ICE THROW

1.5.28 Standard mitigation for the risk of ice throw comprises off-site monitoring to enable the deactivation of turbines on sensing ice accumulation, as well as physical and visual warnings for both site personnel and third parties.

1.5.29 In line with current guidance, a permanent warning sign at the Site's entrances is proposed to alert the public to the possibility of ice throw under certain weather conditions.

1.5.30 Considering the above, no ice throw assessment is provided within this EIAR.

RISK OF MAJOR ACCIDENTS AND/OR DISASTERS

1.5.31 The Proposed Development is located within the Health and Safety Executive's (HSE's) land use planning consultation zones for three major accident hazard pipelines including:

- Laggan Tormore Pipeline/PTDS operated by Total E & P UK Ltd;
- Brent Pipeline – Cormorant Alpha to Sullom Voe operated by TAQA Brantani Ltd; and
- Ninian Pipeline operated by BP Exploration Operating Co Ltd.

1.5.32 There is potential to initiate a major accident as a result of disturbing the pipelines.

1.5.33 HSE were consulted with during scoping and recommended that the EIA shows that the operator of the pipelines has been consulted regarding the following issues, or that the issues have been considered in the assessment:

- the development restricted area due to the pipelines;

[6] BiGGAR Economics (2021). Wind Farms and Tourism Trends in Scotland: Evidence from 44 Wind Farms. Available at https://biggareconomics.co.uk/wp-content/uploads/2021/11/BiGGAR-Economics-Wind-Farms-and-Tourism-2021.pdf [Accessed January 2025].

- ensuring the integrity of the pipelines and protecting the pipelines from development and operational works.

1.5.34 As advised by HSE, further consultation has been undertaken with the pipeline operations, and this is presented in **Technical Appendix 1.1: Consultation Register (EIAR Volume 4)**.

1.5.35 In addition, the Proposed Development is located within HSE's land-use-planning consultation zones for a major hazard site (Shetland Gas Plant operated by Total Energies E&P UK Ltd). This indicates the potential of the Proposed Development being vulnerable to harmful effects from an industrial major accident at Shetland Gas Plant.

1.5.36 HSE advised in their scoping response that wind farms are usually not a relevant development in relation to land-use planning in the vicinity of major hazard sites and major accident hazard pipelines as they do not, in themselves, introduce people into the area. However, as the Proposed Development involves a BESS and is adjacent to a Control of Major Accident Hazards (COMAH) site (Shetland Gas Plant), HSE advised that consultation with the operator of the COMAH site should take place.

1.5.37 As advised by HSE, further consultation with the operator of the COMAH site has been conducted and this is presented in **Technical Appendix 1.1: Consultation Register (EIAR Volume 4)**.

Baseline Characterisation

1.5.38 Baseline characterisation is the process by which the environmental conditions now and in the future (assuming no development on the Site) are established. The process has included a combination of desk research, site survey and empirical study and projection.

1.5.39 The environmental baseline adopted for the purposes of the EIA is stated in each of the technical assessment chapters provided in the EIAR. The baseline is normally taken as the current character and condition of the Site and surrounds, and the likely significant environmental effects of the Proposed Development are then assessed in the context of the current conditions.

Mitigation by Design and Consideration of Alternatives

1.5.40 Following the baseline characterisation, the information collected on environmental constraints was used to inform the consideration of design alternatives. An iterative process was followed, whereby the Applicant considered a range of turbine layouts, infrastructure and access proposals. The aim of the design element of the EIA process was to develop an optimal solution which seeks to maximise potential renewable energy generation, within technical and environmental constraints. The main aim has been to avoid likely significant environmental effects through the design. Further details on the design process adopted for the Proposed Development are set out within **Chapter 3: Design Evolution and Alternatives (EIAR Volume 2)**.

Impact Assessment

1.5.41 The next stage in the EIA process was to complete an impact assessment to address the likely significant effects remaining following the implementation of embedded (primary) mitigation[7]

[7] Embedded (primary) mitigation is an inherent part of the project design and comprises measures that have influenced the location and design of the Proposed Development.

and standard (tertiary) mitigation[8]. An assessment chapter has been provided for each issue where it is considered that there are likely significant effects associated with the construction, operation or restoration phases of the Proposed Development. Each assessment chapter considers primary, secondary, direct, indirect and cumulative effects and defines the assessment methodology used and the criteria by which a significant effect is defined.

1.5.42 Following the operational phase, the Proposed Development would either be decommissioned or repowered. Decommissioning of the Proposed Development is anticipated to result in environmental effects broadly similar to those experienced during construction, this includes temporary disturbance associated with the removal of turbines and infrastructure and temporary increases in noise and vehicle movements. Detailed decommissioning proposals would be established and agreed with relevant authorities prior to commencement of decommissioning activities, and this would take cognisance of guidance available at the time.

1.5.43 With this in mind, an assessment of the decommissioning of the Proposed Development has not been undertaken as part of the EIA, as at this stage the future baseline conditions cannot be predicted accurately and both the proposals for refurbishment/decommissioning and the future regulatory context are unknown. It is likely that decommissioning is addressed by a condition on the consent requiring a decommissioning plan to be submitted for approval towards the end of the life of the Proposed Development.

Additional (Secondary) Mitigation

1.5.44 The impact assessment is used to identify where additional (secondary) mitigation is required to address likely significant effects, where it has not been possible to avoid the effect through design of the turbine or infrastructure layout or through application of standard mitigation. Mitigation has been considered following a hierarchy of first seeking to avoid effects, followed by seeking a reduction in effects to level not considered significant, and finally where necessary and possible, offsetting or compensatory measures are considered. **Chapter 14: Schedule of Mitigation (EIAR Volume 2)** provides a summary of the mitigation measures provided in each of the technical chapters to avoid, reduce or offset impacts which could give rise to significant residual effects.

1.6 Statement of Competence

1.6.1 In accordance with regulation 5(5) of the EIA Regulations, by appointing Ramboll UK Limited ('Ramboll') the Applicant has ensured that the EIAR has been prepared by 'competent experts'. The EIAR has been compiled and approved by professional EIAR practitioners at Ramboll, holding relevant undergraduate and post-graduate degrees, professional membership, such as of the Intitute of Sustainability and Environment Professionals (ISEP) and Chartered Environmentalist status with the Society for the Environment. The EIAR meets the requirements of the ISEP EIA Quality Mark Scheme. This is a voluntary scheme operated by ISEP that allows organisations to make a commitment to excellence in EIA and to have this commitment independently reviewed on an annual basis.

1.6.2 The project team comprises the companies presented in **Table 1.1** below. Professional qualifications for the lead author of technical reports are included in **Technical Appendix 1.2: Technical Team (EIAR Volume 4)** and each of the impact assessment chapters

[8] Standard (teritiary) mitigation comprises measures that are mandated by legislative requirements and best practices and would be required regardless of the outcome of the EIA.

provides details of the relevant professional memberships of the author, code or practice followed and assessment methodology used.

Table 1.1: Project Team

Discipline	Discipline Organisation
Lead EIA Consultant	Ramboll
Planning and Policy	David Bell Planning
Seascape, Landscape and Visual Amenity	Ramboll
Cultural Heritage	AOC Archaeology
Ecology and Ornithology	Alba Ecology
Hydrology, Hydrogeology, Geology and Soils	Ramboll
Traffic and Transport	SYSTRA
Noise	TNEI
Aviation and Radar	Aviatica
Telecommunications	Aviatica
Shadow Flicker	Ramboll
Carbon Balance	Ramboll

1.7 Copies of the EIAR

1.7.1 Paper copies of the EIAR will be made available to view at the following publicly accessible locations:

- Shetland Islands Council, 8 North Ness House, Lerwick, Shetland, ZE1 0LZ; and
- Shetland Library, Lower Hillhead, Lerwick, Shetland, ZE1 0EL.

1.7.2 This EIAR, including all figures, technical appendices and accompanying documents are available to view and download on the project website (https://neshionenergypark.co.uk/) free of charge.

1.7.3 The application documents will be available via the Scottish Government energy consents portal (https://www.energyconsents.scot/Default.aspx) and Shetland Islands Council (SIC) planning portal (https://www.shetland.gov.uk/planning-applications/view-planning-applications).

1.7.4 The Applicant will work closely with the ECU to ensure all statutory consultees receive a physical copy of this EIAR upon request.

1.7.5 In the interests of sustainability, reference to the paperless (project website/ECU/SIC planning portal) version is strongly recommended. For anyone who has difficulty accessing the documentation online, a CD or USB copy will be made available free of charge. Hardcopies of the Non-Technical Summary can also be made available free of charge by contacting info@neshionenergypark.co.uk.

1.8 Commenting on the Application

1.8.1 When the application for the Proposed Development is lodged with Scottish Government the applicant will advertise the application in accordance with legislation as follows:

- a local newspaper for two successive weeks (Shetland Times);

- the Herald for one week;
- the Edinburgh Gazette for one week; and
- on the developers' application website at: https://neshionenergypark.co.uk/.

1.8.2 The advertisement will provide details of the date by which representations should be made. The Scottish Government will invite formal representations on the Proposed Development, which will be taken into account before any decision is reached on the application.

1.8.3 Any representations in relation to the application should be made to the Energy Consents Unit via the Energy Consents website at www.energyconsents.scot or by post to The Scottish Government, Energy Consents Unit, 4th Floor, 5 Atlantic Quay, 150 Broomielaw, Glasgow, G2 8LU, identifying the Proposed Development and specifying the grounds for representation.

2 Description of the Proposed Development

2.1 Introduction

2.1.1 This Chapter provides a description of the Proposed Development for the purposes of identifying and assessing likely significant effects. Information is provided on:

- the location of the Proposed Development;
- the physical characteristics of the Proposed Development, including, the land-use requirements during the construction and operational phases;
- the main characteristics of the construction and operational phase of the Proposed Development having regard to the type and quantity of expected residues and emissions; and
- typical activities associated with the decommissioning of the Proposed Development.

2.1.2 This Chapter is supported by the following figures and technical appendices:

- Volume 3a: Figures:
  - **Figure 2.1: Site Layout;**
  - **Figure 2.2: Typical Wind Turbine Elevations;**
  - **Figure 2.3: Typical Turbine Foundations and Crane Hardstanding;**
  - **Figure 2.4: Typical Access Track Detail;**
  - **Figure 2.5: Typical Substation and Compound Layout;**
  - **Figure 2.6: Typical Battery Energy Storage System Layout;**
  - **Figure 2.7: Typical Temporary Construction Compound Layout;**
  - **Figure 2.8: Typical Cable Trench Section;** and
  - **Figure 2.9: Typical CCTV and Fencing Layout.**
- Volume 4: Technical Appendices:
  - **Technical Appendix 2.1: Outline Construction Environmental Management Plan (OCEMP);**
  - **Technical Appendix 2.2: Borrow Pit Assessment;** and
  - **Technical Appendix 2.3: Carbon Balance Assessment.**

2.1.3 The Applicant's description of the Proposed Development is as follows:

2.1.4 Neshion Energy Park (the 'Proposed Development') is a renewable energy development situated to the east of Sullom Voe Oil Terminal (SVT) and the Shetland Gas Plant in the North Mainland of Shetland, Scotland - strategically positioned within an area that will play a central role in Shetland's transition from fossil fuels to clean energy technologies. Covering approximately 300 hectares, the Proposed Development comprises up to eight wind turbines with a maximum blade tip height of 200 m above ground level (agl), a Battery Energy Storage System (BESS), access tracks, substation and areas for habitat management.

2.1.5 If consented, the impacts of the Proposed Development go beyond clean energy generation to tackle climate change and support energy security. The Proposed Development aims to provide Shetland's first Local Energy Discount Scheme to directly contribute to fuel bill reduction. Importantly, the Proposed Development can also be a catalyst for a clean fuels transition - supporting jobs and the sustainable future operation of Shetland's energy infrastructure by providing clean electricity to the neighbouring SVT e-fuels project.

2.2 Site Location

2.2.1 The Site (defined by the application boundary on **Figure 2.1: Site Layout (EIAR Volume 3a)**) covers an area of approximately 303 hectares (ha) and is located on land adjacent to Sullom Voe Oil Terminal (SVT) and the Shetland Gas Plant in Shetland, Scotland.

2.2.2 Settlements within approximately 1.5 km the Site are limited to scattered dwellings, in areas such as Toft, Brough and Garths Voe. Small settlements such as Firth and Mossbank are located approximately 2.1 km and 2.7 km from the Site, respectively

2.2.3 The Site comprises an undulating plateau that ranges in elevation from mean high-water level at its northernmost extent by Ay Wick, to approximately 110 m Above Ordnance Datum (AOD) at the Hill of Crooksetter located east of the centre of the Site. Towards the southern end of the Site the topography gently undulates between 40 m AOD and 90 m AOD. The Site is drained by a number of natural burns such as the Aywick Burn, along with artificial drainage ditches installed historically in an attempt to lower the water table and improve grazing conditions.

2.2.4 The Site comprises a combination of open heather moorland and grassland on peaty soils, which is used for rough grazing. The Site is typical of the wider landscape which exhibits a similar combination of hilly coastal terrain, small coastal islands and rocky coastal edges that mark the edge of the open waters of numerous voes (Orka Voe, Garths Voe, Tofts Voe and Firths Voe). The Site is immediately adjacent to extensive industrialised areas in the form of SVT and the Shetland Gas Plant – these comprise expanses of concrete, vast networks of pipework, flare stacks, ancillary buildings and large storage tanks.

2.2.5 The northern extent of the Site overlaps with two designated sites, Yell Sound Special Area of Conservation (SAC) and Yell Sound Site of Special Scientific Interest (SSSI). The SAC also encompasses the coastline of SVT.

2.2.6 There is one Scheduled Monument within the Site which is a prehistoric burial monument in the form of a chambered cairn, located to the north west of the summit of the Hill of Crooksetter.

2.3 Proposed Development

2.3.1 The Proposed Development would comprise eight turbines and a Battery Energy Storage System (BESS) along with associated infrastructure, arranged as illustrated on **Figure 2.1: Site Layout (EIAR Volume 3a)**.

2.3.2 The Proposed Development would include the following key components:

- up to eight wind turbine generators (turbines) with a maximum tip height of 200 m and a combined generation capacity of greater than 50 MW;
- permanent foundations supporting each wind turbine, and associated crane hardstanding at each wind turbine base;
- a total of approximately 7.5 km of new permanent on-site access tracks with associated watercourse crossings, and approximately 0.4 km of temporary access tracks to service the borrow pit during the construction phase;
- a site entrance to the west of the Site for construction and operation, designed to accommodate abnormal indivisible loads (AIL) required for turbine component delivery;
- underground cable arrays within the Site connecting the turbines to the on-site substation;
- an on-site substation and control building;

- temporary construction compounds and laydown areas; and
- a BESS with a footprint of up to 0.5 ha, including ancillary equipment and co-located with the on-site substation.

2.3.3 In addition, the following ancillary works would be necessary:

- habitat management such as peatland habitat restoration and riparian tree/scrub planting (refer to **Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan**);
- extraction of rock from a borrow pit and reinstatement of the borrow pit to an agreed restoration design;
- temporary on-site concrete batching plant;
- off-site works to facilitate the delivery of abnormal loads (e.g. construction of over-run areas and temporary modification to street furniture etc.); and
- permanent hardstanding to accommodate remote sensing equipment for measuring wind conditions (to be co-located with the on-site substation and BESS).

2.3.4 The locations of the proposed turbines and other infrastructure would be subject to 'micrositing'. This process allows for minor changes in turbine or infrastructure locations, which would only be confirmed following detailed site investigation work and detailed design carried out after consent is received and prior to construction. This process also provides scope for further mitigation of localised potential environmental effects through avoidance of sensitive features. It is anticipated that the micrositing distance of 100 m would form a condition accompanying any consent. Any repositioning would be carried out under the supervision of an ecological clerk of works (ECoW) and an appropriately experienced and qualified engineer with the objective of optimising the design and implementing the mitigation hierarchy to avoid and minimise new or additional significant environmental effects. The proposed locations for all infrastructure including wind turbines, BESS, tracks, construction compounds, the substation and borrow pit, are shown on **Figure 2.1: Site Layout (EIAR Volume 3a)**.

Wind Turbines and Turbine Layout

2.3.5 The turbine coordinates of the proposed turbines are set out in **Table 2.1.**

Table 2.1: Turbine Locations

Turbine Number	Easting	Northing
1	441180	1176678
2	441176	1177173
3	441196	1177668
4	441600	1178091
5	441796	1177653
6	441949	1177082
7	442366	1176774
8	441834	1176508

2.3.6 As described above, these locations would be subject to micrositing during the construction phase. The Construction Environmental Management Plan (CEMP) would include detailed guidance on the application of the proposed micrositing tolerance. An Outline CEMP is included in **Technical Appendix 2.1: Outline Construction Environmental Management Plan (OCEMP) (EIAR Volume 4)**.

2.3.7 The exact model of wind turbine to be installed at the Proposed Development would be selected through a competitive procurement process. In each assessment in the EIA, a worst-case scenario of the turbine dimensions/characteristics has been used within the overall 'design envelope' which limits the turbine tip height to 200 m above ground level. An indicative turbine for the Proposed Development is shown on **Figure 2.2: Typical Wind Turbine Elevations (EIAR Volume 3a)**.

2.3.8 Wind turbines are available in a variety of colours, the most common being white, off white or light grey. The finish is normally semi-matt. The colour of the turbines would be agreed in consultation with Shetland Islands Council (SIC).

2.3.9 For indicative purposes, based on current (2026) turbine technology, the typical generation capacity for a turbine of the size and design proposed would be between 6.5-7.2 MW.

Permanent Land Take (Operational Phase)

2.3.10 The Site area is approximately 303 ha (**Figure 2.1: Site Layout (EIAR Volume 3a)**). Within this area the permanent land take would be limited to the wind turbine hardstanding area, permanent crane hardstandings, BESS hardstanding area, substation hardstandings and access tracks, which account collectively for about 3% of the total area within the Site.

2.3.11 The turbine foundation (**Figure 2.3: Typical Turbine Foundations and Crane Hardstanding (EIAR Volume 3a)**) is made up of a central excavation of approximately 22 m diameter and an approximate depth of 3-5 m subject to prevailing ground conditions. Sloping batters would increase the excavated area to approximately 35 m diameter at ground level.

2.3.12 Each turbine requires a crane hardstanding to facilitate construction and maintenance. At each turbine there would be approximately 3,276 m^2 permanent hardstanding (**Figure 2.3: Typical Turbine Foundations and Crane Hardstanding (EIAR Volume 3a)**).

2.3.13 A 2 m wide maintenance hardstanding would be created around the base of each turbine. The foundation excavation would be backfilled and covered with soil leaving only the concrete plinth exposed at ground level to which the steel tower would be attached.

2.3.14 The Proposed Development would result in the construction of approximately 7.5 km of new track. The required running width of the track would be typically a minimum of 5 m on straight sections and a maximum of 7.5 m on bends, with 0.5 m wide shoulders on each side. Typical access track details are presented on **Figure 2.4: Typical Access Track Detail (EIAR Volume 3a).** Using the minimum and maximum access track widths, the total permanent land take area for the new tracks would be range between approximately 44,848 m^2 and 63,534 m^2 which includes turning heads.

2.3.15 The substation compound would take up an area of approximately 5,000 m^2 (**Figure 2.5: Typical Substation and Compound Layout (EIAR Volume 3a)**). The substation compound would comprise a substation and control room buildings (if required), including basic welfare facilities (e.g. a toilet and parking area), and potentially some external electrical equipment. A lidar would also be located within the substation compound area. The building would accommodate all the equipment necessary for automatic remote control and monitoring of the Proposed Development in addition to the electrical switchgear, fault protection and

metering equipment required to connect the Proposed Development to the electricity network. Depending on the nature of the connection, there may be external electrical infrastructure adjacent to the control building.

2.3.16 The BESS compound would take up an area of approximately 5,000 m^2 (**Figure 2.6: Typical Battery Energy Storage System Layout (EIAR Volume 3a)**).

Temporary Land Take

2.3.17 A temporary area of excavation around each turbine would be identified during detailed design once an accurate cut and fill profile has been identified.

2.3.18 In addition to the permanent hardstanding, an additional 1,116 m² of temporary hardstanding for blade fingers and secondary crane pads at each turbine location would be required during the construction phase.

2.3.19 The main construction compound, located at the Site entrance, would require a hardstanding area of approximately 10,000 m^2, which allows area for staff parking, welfare facilities, generators and fuel storage, plant and material storage (**Figure 2.7: Typical Temporary Construction Compound Layout (EIAR Volume 3a)**). This area would be re-instated after construction is complete.

2.3.20 The temporary concrete batching plant would be located within the construction compound area described above or within a borrow pit search area and would incorporate storage of raw materials (water, sand, aggregate, cement and additives), a concrete washout area, welfare facilities, storage for other materials and waste, generators and fuel tanks, parking for vehicles and the batching plant.

2.3.21 One borrow pit search area has been identified for the Proposed Development. An indicative borrow pit design has been prepared for the borrow pit search area and is presented in **Technical Appendix 2.2: Borrow Pit Assessment (BPA) (EIAR Volume 4)**. The indicative borrow pit design within the search area would require an area of approximately 3,435 m^2. The total area of the borrow pit required would be determined at a later stage once the exact quantity of material required is known and further site investigations have been undertaken. As such, for the purposes of the temporary land-take calculations, an additional 20% has been added to the excavation area to allow for potential variation in the final borrow pit footprint arising from uncertainties in material requirements and ground conditions.

2.3.22 Ancillary excavation works and material storage around other parts of the Proposed Development, such as those for cable trenching, would have a negligible impact on environmental receptors due to the very minor scale of the excavation or duration of the works and are not considered further in this EIAR.

2.3.23 The area of temporary and permanent land take associated with the Proposed Development is presented in **Table 2.2**.

Table 2.2: Summary of Approximate Temporary and Permanent Land Take

Energy Project Elements	Temporary (m^2)	Permanent (m^2)
Turbine Hardstanding (including crane pad and blade pads)	8,926	26,205
On-site Access Tracks	3,419 (maximum) 2,414 (minimum)	63,534 (maximum) 44,848 (minimum)
Substation Compound	-	5,000
BESS	-	5,000
Construction Compound	10,000	-

Table 2.2: Summary of Approximate Temporary and Permanent Land Take		
Energy Project Elements	**Temporary (m^2)**	**Permanent (m^2)**
Borrow Pit (indicative area +20%)	4,122	-
Total Land Take	**16,467 (maximum)** **15,462 (minimum)**	**99,740 (maximum)** **81,053 (minimum)**

Turbine Foundations and Hardstanding

2.3.24 Turbines are typically fixed to reinforced mass gravity concrete foundations, approximately 22 m in diameter. The foundations would be formed in excavations approximately 3-5 m deep, depending upon ground conditions (**Figure 2.3: Typical Turbine Foundations and Crane Hardstanding (EIAR Volume 3a)**).

2.3.25 Prior to excavation, topsoil and existing vegetation would be lifted and stored. After completion the foundation would be backfilled with suitable excavated or imported material, and the original vegetation would be reinstated around the permanent hardstanding areas where possible.

2.3.26 Concrete for site construction, including turbine foundations, would mostly be batched on-site.

2.3.27 The turbines would be erected using mobile cranes. These require areas of hardstand adjacent to the turbine locations, which can support the load of the cranes on their outriggers. The permanent hardstands, typically up to approximately 3,276 m^2 dependent on-site conditions, and approximately 1,116 m^2 of temporary hardstands at each turbine, are formed by excavating soft ground, and infilling with compacted stone (**Figure 2.3: Typical Turbine Foundations and Crane Hardstanding (EIAR Volume 3a)**). Temporary hardstand areas would be required for laydown of turbine components and for a small support crane to assist the main erection crane.

2.3.28 A just-in-time delivery strategy would be considered during the detailed design phase to minimise the need for temporary hardstanding at each turbine location. By coordinating the arrival of key turbine components with the construction and installation schedule, just-in-time delivery reduces on-site storage and laydown requirements, thereby lessening the temporary hardstand footprint. The feasibility of implementing this approach would be evaluated in collaboration with the turbine supplier and transport contractors as part of the detailed design process.

Lighting

2.3.29 The Proposed Development would require visible aviation lighting under the current Civil Aviation Authority (CAA) policy statement[1].

2.3.30 It is currently proposed that all eight turbines will be fitted with 2000 candela steady red lights (visible to the human eye) and infra-red lights (not visible to the human eye) on the nacelles.

2.3.31 In addition to lighting on the turbines themselves, low-level security lighting at the substation and BESS would also be required.

Electrical Cabling

2.3.32 Electrical connections from the wind turbines to the on-site electrical substation and control building would be made via underground cables. All power and cabling on site would be laid in trenches approximately 1-2 m wide and 1-2 m deep, located adjacent to the access tracks,

[1] CAA Policy and Guidelines on Wind Turbines, CAP 764 (Draft June 2020)

in the verge or close to the track which would allow for easy access to lay the cable. Typical cable trench detail is illustrated in **Figure 2.8: Typical Cable Trench Section (EIAR Volume 3a)**.

On-site Substation Compound and BESS Compound

2.3.33 The substation compound would measure approximately 50 m x 100 m (approximately 5,000 m^2) and would include a control building and battery energy storage systems.

2.3.34 The Proposed Development will include up to 25 battery energy storage units which will contain batteries, inverters, transformers and control and safety equipment, housed in steel containers approximately 12 m in length by 3 m in width by 3 m in height. The type of battery technology is still to be determined. The installed capacity of the battery storage containers will be up to 25 MW and the duration is anticipated to be 4 hours (i.e. 4MWh per container and 100MWh of total storage).

2.3.35 Power Conversion Units will be required, providing an interface between the Direct Current (DC) of the batteries and the Alternating Current (AC) of the electricity grid, and transformers similarly to interface between the lower voltages of the batteries and higher voltages of the grid. The PCUs will be approximately 6 m in length by 3 m width by 3 m in height.

2.3.36 The electrical cables would terminate at the substation. Located adjacent to the substation would be a control building measuring approximately 25 m x 10 m (approximately 250 m^2) with a pitched roof up to 6 m, containing switchgear, control equipment, basic welfare facilities including a toilet and parking area (**Figure 2.5: Typical Substation and Compound Layout (EIAR Volume 3a)**).

2.3.37 Located adjacent to the substation and control building would be a BESS compound measuring approximately 50 m x 100 m (approximately 5,000 m^2) containing battery containers, switchgear container, power conversion systems and security fencing (**Figure 2.6: Typical Battery Energy Storage System Layout and Figure 2.9: Typical CCTV and Fencing Layout (EIAR Volume 3a)**).

2.3.38 A lidar would be co-located within the substation and BESS area.

Temporary Construction Compounds

2.3.39 One temporary construction compound would be required to enable construction of the Proposed Development. The compound would be located within the construction compound area as shown on **Figure 2.1: Site Layout (EIAR Volume 3a)**. The compound area would include:

- access tracks and internal circulation routes for vehicles and pedestrians;
- lighting for security and safety during hours of darkness;
- surface water management measures;
- temporary office accommodation and welfare buildings (toilets, kitchen/canteen, drying rooms);
- equipment storage;
- a receiving area for incoming vehicles;
- maintenance and refuelling facilities;
- waste, recycling and materials management facilities;
- general laydown areas; and
- parking.

2.3.40 The indicative layout of the temporary construction compound is shown on **Figure 2.7: Typical Temporary Construction Compound Layout (EIAR Volume 3a)**.

Access and Site Tracks

2.3.41 Access to site would be taken from the west of the Site from via an unadopted road to Shetland Gas Plant (which is accessed via the B9076). For more information on the delivery route to the Site see **Chapter 9: Transport, Traffic and Access (EIAR Volume 2).**

2.3.42 Accessing the Site from the Gas Plant Road necessitates crossing three major accident hazard pipelines. Proposed crossing solutions include either the installation of a protection slab or the construction of a permanent bridge. Access to the borrow pit location would require the construction of a temporary bridge. The Applicant is actively consulting with the pipeline operators and at detailed design would collaboratively develop an appropriate crossing design. This design would adhere to industry best practice guidelines and comply fully with the Pipeline Safety Regulations.

2.3.43 Approximately 7.9 km of new onsite access tracks would be required to provide access to the wind turbines, substation compound, borrow pit search area and construction compound (**Figure 2.1: Site Layout (EIAR Volume 3a)**). The access track linking Turbine 8 to the main access track is intended solely for use during operational and maintenance activities; it would not be utilised for transporting turbine components during the construction phase. Typical access track designs are shown in **Figure 2.4: Typical Access Track Detail (EIAR Volume 3a)**. This figure shows the use of typical cut and fill access tracks.

2.3.44 Tracks would have a typical 5 m running width (with 0.5 m wide shoulders on each side) with appropriate widening to a maximum of 7.5 m on bends, at junctions and passing places.

2.3.45 In areas where the peat and topsoil are consistently less than 1 m deep, the vegetation and soil would typically be stripped to a suitable subsoil layer and the track (approximately 300 mm – 500 mm thick) would be constructed on the subsoil. The upper topsoil layer, together with turf, would be stored temporarily for use in landscaping and revegetating the track shoulders and track side drainage, where possible.

2.3.46 Once the soil has been removed, as described above, to a suitable founding layer, the road and running surface would be constructed by tipping and compacting aggregate to the required shape and thickness. Cross-sections of the final road shape following reinstatement of the roadside slopes by replacing the layers of excavated material in the correct order are presented in **Figure 2.4: Typical Access Track Detail (EIAR Volume 3a)**.

2.3.47 Where peat depths of 1 m or greater are identified and suitable engineering criteria are met, for example shallow topography, the Proposed Development would use floating road construction. While subject to detailed site investigation and design, typically gradients in excess of 10% (longitudinal) and 5% (transverse) are unsuitable for floating construction. The use of 'floating roads' in areas of deep peat eliminates the need for excavation and minimises effects on ecology and disruption to existing water paths and allows for some filtration.

2.3.48 The on-site track layout has been designed to minimise environmental disturbance and land take wherever possible by avoiding areas of deeper peat and steep longitudinal slopes in excess of 14% (8 degrees) as well as, wherever possible, avoiding or minimising areas of identified environmental constraints.

2.3.49 The track layout has been carefully designed to minimise the number of watercourse crossings where possible, which are discussed in the section below.

Borrow Pits

2.3.50 One borrow pit search area has been identified covering a total of approximately 11,800 m², to supply material to construct the Proposed Development. The use of this borrow pit would provide a volume of rock for the construction of the Proposed Development but allows for the current uncertainty of the quality of the rock at this location. An indicative borrow pit design is presented in **Technical Appendix 2.2: BPA (EIAR Volume 4)**.

2.3.51 Stone would be required for various purposes, primarily track and hardstanding construction. If the stone on-site is found suitable then a proportion of this could be won from foundation excavation and the remainder would be sourced from the on-site borrow pit or from off-site quarries.

Associated Development

Connection Infrastructure

2.3.52 The Proposed Development would potentially have both a 'private-wire' connection to the neighbouring SVT to supply a low carbon fuel plant at the terminal, and a connection to the electricity grid. The details of both connections are currently unknown and do not form part of the Proposed Development for purposes of the application for consent; however it is acknowledged that to assess the combined effects of the Proposed Development as a whole, there is a need to consider the potential for likely significant effects in combination with the associated connection infrastructure, in so far as it is possible to do so based on the information available at the time of writing.

2.3.53 At the time of writing, the exact details of connection infrastructure requirements are unknown; however it is reasonable to assume that the Proposed Developments grid connection will be made to a proposed point of connection (PoC) in northern Shetland comprising a 400kV substation, a 200kV substation and a High-Voltage Direct Current (HVDC) link converter station, with a proposed link that connects to a proposed HVDC link converter station in the western region of Shetland (known as the Northern Hub (NH)). The NH project is being developed by the Transmission System Operator (TSO), Scottish and Southern Electricity Networks Transmission (SSEN-T) and is currently at site selection stage. Further, it is assumed that the private wire connection will connect to the southern region of SVT (as informed by discussions with operators and owners of the terminal).

2.3.54 Based on the above assumptions, an appraisal of the grid connection and private wire connection is provided in **Technical Appendix 2.4: Electricity Connection Infrastructure Appraisal (EIAR Volume 4)**.

2.4 Construction Phase

Construction Programme

2.4.1 The estimated construction period of the Proposed Development is approximately 24 months. This period is indicative only and may be subject to variation as a result of factors which include, but are not limited to, weather restrictions, ground conditions encountered through detailed investigation, turbine component and material delivery, timing of grid connection works and public highway constraints. However, this is considered to represent a realistic case for the purposes of assessment.

2.4.2 Construction by the appointed main contractor would begin following agreement of the detailed design and approval of any pre-commencement conditions with the appropriate consenting authority. Key construction activities would involve:

- public road improvement and junction creation;
- construction of main site access track and to the first borrow pit;
- construction of the temporary construction compound and laydown areas;
- construction of substation and control building and BESS;
- construction of all access tracks having established the required borrow pit;
- design and construction of temporary and permanent drainage measures;
- construction of turbine foundations excavations, cable ducting within each foundation, steel reinforcement, crane hardstandings and laydown areas, including temporary blade fingers and secondary crane harstanding;
- installation of concrete batching plant;
- pouring concrete foundations and following curing and testing, reinstatement of the ground up to plinth level;
- excavation of cable trenches;
- laying of electricity and communications cables in trenches;
- delivery, installation, testing and commissioning of wind turbines, with turbines connected to temporary generators during the commissioning phase; and
- site reinstatement and restoration in accordance with Peat Management Plan (PMP) and Biodiversity and Habitat Management Plan (BHMP).

2.4.3 The works are likely to follow the order as detailed above, however many activities would be undertaken concurrently to minimise the overall construction programme.

2.4.4 Site restoration would be undertaken as soon as possible in affected areas to minimise disruption to land use. Habitat management and restoration proposals are detailed in **Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**. Where appropriate, measures to be delivered as part of the Habitat Management Plan would be implemented at the earliest practicable opportunity to maximise and expedite the potential for beneficial effects.

2.4.5 Further intrusive ground investigation surveys would be undertaken prior to the main construction works beginning on-site to determine the specific quality of rock and the rock head depth underlying the locations for site infrastructure. Initial baseline surveys as part of the EIA have informed the design of the Site access roads.

2.4.6 The appointed contractor would develop the details of the site design and construction methods in compliance with the Applicant's contract requirements and the EIAR.

2.4.7 The access tracks would be left in place following construction to provide permanent access for maintenance, repairs and eventual decommissioning of the Proposed Development. The construction works would be undertaken by a competent and experienced contractor in accordance with the project consent and any associated conditions and also in accordance with good industry practice. Prior to commencing construction, a more detailed construction and reinstatement programme would be submitted to the consenting authority.

2.4.8 Traffic movements associated with the construction of the Proposed Development including required Heavy Goods Vehicles (HGV) and heavy/abnormal load movements are described in **Chapter 9: Traffic and Transport (EIAR Volume 2)**.

2.4.9 An indicative construction programme is illustrated in **Table 2.4**.

Table 2.4: Indicative Construction Programme

	Month																							
Task*	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
1																								
2																								
3																								
4																								
5																								
6																								
7																								
8																								

*Task:
1. Site establishment/plant deliveries
2. Borrow pit working, access track construction and hardstanding areas
3. Foundations
4. Substation Construction
5. BESS Installation and civils works
6. Cabling
7. Erection of turbines
8. Site reinstatement and restoration

Hours of Work

2.4.10 The normal working hours would be as follows:

- Monday to Saturday 0700-1900; and
- Sunday 0700-1600.

2.4.11 No works, with the exception of completing concrete pours, turbine delivery, the completion of turbine erection or emergency work, would take place outside these hours. The requirement for out-of-hours work could arise, for example, the need to finish a concrete pour, from delivery and unloading of abnormal loads or health and safety requirements, or to ensure optimal use is made of fair weather windows for the erection of turbine blades and the erection and dismantling of cranes. Any other out-of-hours works would be subject to prior agreement with SIC.

Construction Traffic and Plant

2.4.12 Vehicle movements associated with construction works would include:

- Cars and minibuses for transporting construction personnel to the Site;
- Heavy goods vehicles (HGVs) for pre-construction delivery of site offices, construction equipment and materials;
- HGV abnormal load vehicles for delivery of the turbine components and base rings; and
- Mobile road going cranes, used for the erection of the turbines; and
- Standard HGVs for transporting electric cable, steel reinforcement for foundations, construction plant fuel and other items and equipment.

2.4.13 A Traffic Management Plan would be agreed in consultation with SIC and Transport Scotland. This would address the scheduling, routing and overall management of abnormal loads movements along with the programming and management of all other HGV movements.

Watercourse Crossing Schedule

2.4.14 As noted above, the number of watercourse crossings has been minimised through site design. Nevertheless, there is a requirement for nine crossings of watercourses as identified on 1:25k mapping, further detail is provided within **Technical Appendix 8.3: Watercourse Crossing Assessment (EIA Report Volume 4)**.

Standard Mitigation and Working Methods During Construction

Construction Environmental Management Plan (CEMP)

2.4.15 The assessment in this EIAR has been carried out on the basis that standard (Secondary) mitigation measures would be implemented during the construction work, including compliance with both project wide and site-specific environmental management procedures, which would be included in the Construction Environmental Management Plan (CEMP). An OCEMP is provided in **Technical Appendix 2.1: OCEMP (EIAR Volume 4)**. A detailed CEMP would be agreed with SIC and relevant statutory consultees prior to construction commencing. The CEMP would, as a minimum, include details of:

- construction methodologies;
- pollution prevention measures;
- public liaison provision;
- peat slide, erosion and compaction management;

- control of contamination/pollution prevention;
- drainage management;
- water quality monitoring;
- management of construction traffic;
- control of noise and vibration; and
- control of dust and other emissions to air.

2.4.16 **Technical Appendix 2.1: OCEMP (EIAR Volume 4)** provides a list of generic mitigation measures that would be included in the CEMP and implemented during the construction and decommissioning of the Proposed Development. It would be a contractual requirement that the appointed contractor complies with the CEMP.

Watercourse Crossings

2.4.17 **Technical Appendix 8.3: Watercourse Crossing Assessment (EIA Report Volume 4)** contains details of the watercourse crossings required as part of the Proposed Development and the proposed crossing type together with the relevant requirements in relation to The Environmental Authorisations (Scotland) Regulations 2018[2], as amended. The final crossing type would be identified as part of the detailed design of the Proposed Development prior to construction and in line with current best practice guidance.

Private Water Supplies

2.4.18 A review of Private Water Supplies (PWS) has been undertaken for the Site and a 2 km buffer around the Site boundary. The review identified no PWS sources within 2km of the Site.

2.4.19 Mitigation to prevent pollution impacts would be set out in a Water Management Plan which would form part of the CEMP, to ensure that the Proposed Development would not lead to significant impact to hydrological receptors. The contents of the CEMP and the Water Management Plan would be agreed with SEPA prior to commencement of works.

Peat Management

2.4.20 **Technical Appendix 8.5: Outline Peat Management Plan (EIAR Volume 4)** outlines the proposed working methods where the excavation of peat would be required and provides further details on potential volumes of peat excavated and the likely requirements for reinstatement. This provides details of the predicted volumes of peat that would be excavated for the Proposed Development, the characteristics of the peat that would be excavated, and how the excavated peat would be reused, recovered and managed. This document would be updated during the detailed design stage and agreed with SEPA prior to construction and would be included in the final version of the CEMP.

2.4.21 It is estimated that the Proposed Development would result in the excavation of approximately 142,044 m^3 of peat including peaty/organo-mineral soils.

Peat Slide Risk

2.4.22 **Technical Appendix 8.6: Peat Landslide Hazard Risk Assessment (EIAR Volume 4)** provides further technical information on the likely risk and hazards associated with peat instability, and the proposed standard mitigation and working methods that would be

[2] Scottish Government (2018). *The Environmental Authorisations (Scotland) Regulations 2018* [online]. Available at: The Environmental Authorisations (Scotland) Regulations 2018 [Accessed 03/03/2026]

implemented during construction to seek to avoid adverse effects associated with peat instability.

Site Reinstatement and Restoration

2.4.23 Following commissioning of the Proposed Development, the construction site would be reinstated. Reinstatement would form part of the contractual obligations for the Principal Contractor and would include all temporary works, such as crane pads, borrow pit, temporary compounds and laydown areas.

2.4.24 Following removal of the temporary works, best practice techniques would be used to ensure soils are replaced in the order they were removed with original vegetation reinstated around the permanent hardstanding areas where possible. Where required, reseeding of the temporary works areas would also be undertaken with an appropriate seed mix.

2.5 Operation Management and Maintenance Phase

Life of the Proposed Development

2.5.1 The expected operational lifespan of the Proposed Development is 40 years (from the date of commissioning). Wind turbines and wind energy projects are designed to operate largely unattended. Each turbine at the Proposed Development would be fitted with an automatic system designed to supervise and control a number of parameters to ensure proper performance (e.g. start-up, shut-down, rotor direction, blade angles etc.) and to monitor condition (e.g. generator temperature). The control system would automatically shut the turbine down should the need arise. Sometimes the turbines would re-start automatically (if the shut-down had been for high winds, or if the grid voltage had fluctuated out of range), but other shut-downs (e.g. generator over temperature) would require investigation and manual restart.

Operational Residues and Emissions

2.5.2 The EIA Regulations require that the EIAR provides an estimate, by type and quantity, of expected residues and emissions (such as water, air and soil and subsoil pollution, noise, vibration, light, heat, radiation and quantities and types of waste produced) resulting from the construction and operation of the Proposed Development.

2.5.3 **Table 2.5** provides a summary of the anticipated residues and emissions.

Table 2.5: Residues and Emissions

Topic	Potential Residues/Emissions
Water	Construction: Occasional and low quantity discharges could arise from pumping, or over-pumping in order to dewater foundation excavations and borrow pit. Pollution sources could arise as a result of soil erosion or from oil/fuel or chemical storage and use. All discharges would be managed in accordance with The Environmental Authorisations (Scotland) Regulations 2018[2]. The proposals for water the control and management of water quality and quantity from the Proposed Development are presented in **Technical Appendix 2.1: Outline Construction Environmental Management Plan (EIAR Volume 4)**. All works in and around watercourses would follow best practice guidance and the OCEMP (**Technical Appendix 2.1: Outline Construction Environmental Management Plan (EIAR Volume 4)**. Further details of the assessment are presented in **Chapter 8: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)**. Operation: Full details of the assessment are presented in **Chapter 8: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2).**

Table 2.5: Residues and Emissions	
Topic	**Potential Residues/Emissions**
Air	Construction: The construction phase would require the transport of people and materials by road, with associated emissions to the atmosphere. There are no air quality management areas within the vicinity of the Proposed Development. Overall, the quantity of air emissions is expected to be low relative to the general background air emissions from road traffic. No significant air emissions are anticipated. Operation: Due to the nature of the Proposed Development no significant point source or diffuse air emissions would be produced during its operation. The Proposed Development would contribute to providing renewable electricity, in turn displacing emissions associated with fossil fuel-based electricity generation elsewhere. The construction of the proposed infrastructure, and subsequent operation and decommissioning of the Proposed Development would include activities that either directly or indirectly result in CO^2 emissions. **Technical Appendix 2.2: Outline Construction Environmental Management Plan (EIAR Volume 4)** calculates the greenhouse gas emissions and carbon payback times for wind farm developments in Scottish peatlands and concludes that the Proposed Development would 'pay back' the carbon emissions associated with its construction, operation and decommissioning: ▪ Between 0.3 and 2.9 years, if compared against a fossil fuel mix generation, with an expected value of 1.5 years; and ▪ Between 0.7 and 5.9 years based on a grid mix generation, with an expected value of 3 years.
Soil and Subsoil	Construction: Soil and subsoil excavation, handling and storage would be required during construction. All soil and subsoil would be stored temporarily for use in reinstatement, such that there would be no residue (surplus) remaining following the construction work. Further details on peat management are provided in **Technical Appendix 8.5: Outline Peatland Management Plan (EIAR Volume 4)**. Operation: No requirement for soil or subsoil excavation or handling during the operational phase has been identified. No pollution sources have been identified for the operational phase.
Noise and Vibration	Construction: Noise sources during the construction phase would include increased traffic flows and noise from construction plant. Further details are provided in **Chapter 10: Noise (EIAR Volume 2)**. Operation: The wind turbines would generate noise during operation, and the noise levels would vary according to the wind speed. The location of residential receptors in relation to the Proposed Development was a consideration in the design development process and the predicted noise levels are within acceptable limits. Full details of the noise impact assessment are present in **Chapter 10: Noise (EIAR Volume 2)**.
Light	Construction: **Technical Appendix 2.1: Outline Construction Environmental Management Plan (EIAR Volume 4)** notes that temporary lighting would be required at the temporary construction compounds for security purposes and to ensure that a safe working environment is provided to construction staff. In addition, temporary lighting could be required to ensure safe working conditions at infrastructure locations during construction. All temporary lighting installations would be downward facing and all lights would be switched off during daylight hours and outwith working hours. Operation: The Proposed Development would require visible aviation lighting under the current CAA policy statement. An assessment of the landscape and visual effects of the proposed aviation lighting is presented in **Technical Appendix 4.8: Aviation Lighting Impact Assessment (EIAR Volume 4)**. Low-level security lighting at the substation and BESS would also be required. Lights would likely light when activated. Any effect would be temporary and not expected to be significant during normal operation of the Proposed Development.
Heat and Radiation	No significant sources of heat and radiation have been identified during either the construction or operation phase of the Proposed Development.
Waste	Construction: **Technical Appendix 2.1: Outline Construction Environmental Management Plan (EIAR Volume 4)** provides details on pollution prevention control and Site waste management that would be implemented during construction. A Site Waste Management Plan would be designed to follow the principles of: Avoidance; Minimisation; Separable; Recyclable. Operation: The power generation aspect of the Proposed Development would not produce any waste emissions or pollutants. The general operation and maintenance of the Proposed Development has the potential to produce a small amount of waste. This

Table 2.5: Residues and Emissions	
Topic	**Potential Residues/Emissions**
	is likely to be restricted to waste associated with the control building from employees and visiting contractors and the storage of oils and lubricants.

2.6 Decommissioning Phase

2.6.1 At the end of the project's operational life, a decision would be made as to whether to decommission or repower the turbines. If repowering were to be chosen, relevant consent applications would be made. If a decision were to be taken to decommission the Proposed Development, this would be anticipated to comprise the dismantling and removal of the turbine components, site substation and BESS facility. Subject to agreement and further evaluation of the best environmental option, access tracks and underground cables would be either left in place, partially removed or removed entirely. It is anticipated that foundations would be removed to a depth of 0.5 m below ground level to avoid environmental effects from removal.

2.6.2 Detailed decommissioning proposals would be established and agreed with relevant authorities prior to commencement of decommissioning activities. This would take cognisance of guidance available at the time. A Decommissioning Plan would set out environmental protection measures and restoration principles which would be implemented. This plan would be agreed with SIC.

2.6.3 A detailed assessment of the decommissioning of the Proposed Development has not been undertaken as part of the EIA as: i) the future baseline conditions (environmental and other developments) cannot be predicted accurately at this stage, and ii) the proposals for refurbishment/decommissioning and the future regulatory context are not known at this stage. However, an outline decommissioning strategy is included in the OCEMP (**Technical Appendix 2.1: Outline Construction Environmental Management Plan (EIAR Volume 4)**). It is considered that effects predicted for the construction phase are generally representative (or worse) of the type of effects that would be expected during the decommissioning phase.

3 Design Evolution and Alternatives

3.1 Introduction

3.1.1 This chapter provides a description of the reasonable alternatives studies by the Applicant, which are relevant to the Proposed Development and its specific characteristics. The chapter provides a description of the main reasons for selecting the chosen layout for the Proposed Development, taking into account the effects of the Proposed Development on the environment.

3.1.2 This chapter is supported by the following figures:

- Volume 3a: Figures:
  - **Figure 3.1: Site Context;**
  - **Figure 3.2a-b: Environmental Constraints; and**
  - **Figure 3.2: Layout Design Evolution.**

3.1.3 This chapter is structured to provide the following:

- a review of the Site selection considerations, including a review of the planning history of the Site, Site context and policy relevant to the Site selection and the Site feasibility assessment;
- an overview of the design objectives for this Site;
- a description of the reasonable alternatives studied (noting that this is limited to those which are considered relevant to the Proposed Development); and
- a description of the main reasons for selecting the final Proposed Development.

3.2 Site Selection Considerations

3.2.1 This section provides a description of the factors that led to the selection of the Site as a suitable location for a wind farm development.

Current Land Use and Site Context

3.2.2 The 'Site', as defined by the application boundary, as shown on **Figure 3.1: Site Context (EIAR Volume 3a)**, covers a total area of approximately 303 hectares (Ha) and comprises a combination of open heather moorland and grassland on peaty soils, which is used for rough grazing. The Site borders with a large industrial site to the east comprising the Sullom Voe Oil Terminal and Shetland Gas Plant and associated infrastructure.

3.2.3 The Site sits within the area defined under the proposed Sullom Voe Development Framework[1]. The Framework is being developed collaboratively by a group of developers and other stakeholders in consultation with landowners, communities, local businesses and other interested parties, with input from Shetland Islands Council (SIC), government agencies and advisors – including NatureScot, the Scottish Environmental Protection Agency (SEPA), Historic Environment Scotland (HES) and Scottish Water. The Framework seeks to maximise the benefits of future energy development in Shetland while helping to reduce

[1] Sullom Voe Development Framework (2025). *Sullom Voe Development Framework*. [online]. Available at: https://sullomvoedevelopmentframework.co.uk/ [Accessed March 2026].

impacts by concentrating development in an already industrialised area and avoiding the proliferation of new infrastructure elsewhere in Shetland. The Development Framework will be considered by SIC and, if adopted, will constitute non-statutory supplementary guidance to be considered alongside the Local Development Plan.

3.2.4 Settlement within approximately 500 m of the Site is limited to scattered dwellings, in areas such as Toft, Brough and Garths Voe. Small settlements such as Firth and Mossbank are located approximately 900 m and 2.1 km from the Site, respectively.

Policy Considerations

3.2.5 The statutory Development Plan covering the Site comprises the following:

- National Planning Framework 4[2] (NPF4) (adopted on 13th February 2023); and
- Shetland Local Development Plan[3] (LDP) (adopted on 26th September 2014).

3.2.6 This EIAR does not make any judgements regarding the 'acceptability' of the Proposed Development. A separate Planning Statement accompanies the Application and presents an appraisal of the Proposed Development with reference to the energy and planning policy framework and other relevant material planning considerations.

3.2.7 The design evolution and consideration of alternatives for the Proposed Development have been informed by planning policy, in particular NPF4 Policy 11, which establishes a clear priority to '*encourage, promote and facilitate all forms of renewable energy development'* while requiring that proposals demonstrate robust project design and application of the mitigation hierarchy in response to environmental constraints. In line with this, the evolution of the Proposed Development has followed the mitigation hierarchy through avoiding sensitive areas where possible, reducing potential impact through iterative layout refinement and identifying appropriate mitigation where residual effects remain.

Site Selection and Feasibility

3.2.8 The Site was chosen for wind farm development for a number of reasons:

- The Site is situated next to an industrial hub (Sullom Voe Oil Terminal and Shetland Gas Plant), within an existing industrialised landscape and close to potential high-demand customers for renewable electricity;
- The Site is located in close proximity to potential grid connection infrastructure (the Northern Substation Hub proposed by Scottish & Southern Electricity Networks (SSEN Transmission));
- The Site is in an area identified as suitable for future energy development within the Sullom Voe Development Framework;
- The Site is outwith areas identified within NPF4 as unsuitable for wind development, e.g. National Scenic Areas and National Parks (NPF4 Policy 11);
- The Site has suitable space, topography and gradient to accommodate a wind farm and associated infrastructure;
- The Site has consistently high anticipated wind speeds, which will deliver excellent wind energy yields; and

[2] Scottish Government (2023). *National Planning Framework 4.* Available at: https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2023/02/national-planning-framework-4/documents/national-planning-framework-4-revised-draft/national-planning-framework-4-revised-draft/govscot%3Adocument/national-planning-framework-4.pdf [Accessed August 2025]

[3] Shetland Islands Council (2014). *Shetland Local Development Plan*. Available at: https://www.shetland.gov.uk/downloads/file/1930/local-development-plan-2014 [Accessed August 2025]

- There is scope to deliver suitable access to the Site for both construction traffic and abnormal indivisible loads (AIL) whilst avoiding potential for impacts on local road users.

3.2.9 In 2024, feasibility work was undertaken for the Proposed Development and was used to guide the early design and layout of the wind farm element of the Proposed Development. A 'preferred development envelope' was identified in the north of the Site in response to the following factors:

- ornithological sensitivity and constraint in the south of the Site;
- nationally important heritage assets on Hill of Crooksetter (chambered cairns), sight lines and intervisibility with heritage assets locally;
- residential receptors to the east of the Site at Brough and Toft;
- mitigating the effect on the character of the coast and hinterland and on key visual receptors such as tourists (including vantage points and recreational routes), settlements, road users and ferry passengers by focussing development to the north of the Site; and
- avoiding gaps in the proposed turbine array.

3.2.10 As outlined in the standalone **Planning Statement**, the Site was identified as having the potential to accommodate a renewable energy park that would make a significant contribution to meeting national energy policy and climate emergency policy related goals of achieving net-zero emissions by 2045, as well as contributing significantly to energy security.

3.3 Design Process

3.3.1 The Applicant appointed a team of specialist consultants to provide environmental input to the design of the Proposed Development. Consistent with renewable energy policy, the key overall objective is to maximise the energy generation potential of the Site, whilst having regard to the protection of sensitive environmental receptors. A design process was agreed with the team that included the parameters set out in the following paragraphs.

3.3.2 The approach to design was informed by and responded to:

- Good practice and windfarm design guidance such as SNH Siting and design of Wind Farms in the Landscape[4];
- Planning policy documents (e.g. NPF4[2], Shetland LDP[3]); and
- Consultation responses received through pre-application consultation, EIA Scoping, and the Gatecheck process.

3.3.3 A design brief was agreed with the Applicant setting out key parameters for the Proposed Development. The brief included:

- a preliminary turbine layout which informed the feasibility work and assessment moving forward;
- details of land available (illustrated by the application boundary); and
- requirements for Site construction compounds, borrow pits, substation, Battery Energy Storage System (BESS), laydown areas, access track geometry, and crane hardstanding geometry.

[4] Scottish Natural Heritage (now NatureScot) (2017) *Siting and designing wind farms in the landscape: Version 3a*. Available at: https://www.nature.scot/sites/default/files/2017-11/Siting%20and%20designing%20windfarms%20in%20the%20landscape%20-%20version%203a.pdf [Accessed August 2025]

3.3.4 The design brief subsequently set the scope for constraint mapping with the Applicant being responsible for defining technical requirements such as turbine spacing to avoid turbulence, maximum gradient of potential turbine locations, and associated track infrastructure.

3.3.5 Design Guidance agreed with the Applicant confirmed the following requirements for Site infrastructure:

- turbines should be contained within the Site boundary by a distance equivalent to a turbine blade length (i.e. around 86 m distance) where practicable;
- all watercourses should have a 50 m exclusion area placed around them, in order to ensure protection of water quality;
- access tracks should avoid steep longitudinal slopes in excess of 14% (8 degrees);
- access tracks should minimise the need for watercourse crossings;
- access track running width to be between 5 m and 7.5 m depending on gradient and bends;
- access tracks should be straight for 20 m before and after a bridge, culvert or hardstanding area;
- turning areas to be provided sized to allow turning of loaded or unloaded blade transporters (as required); and
- where possible, borrow pit search areas should be sited in locations that can be reached via existing tracks, in order to avoid the need to construct extensive sections of track to reach them and obtain materials.

3.3.6 Following agreement of the design brief, the team was instructed to undertake all necessary desktop studies and field work to identify key environmental receptors and constraints (including cumulative constraints) of relevance to the design and assessment of the Proposed Development.

3.3.7 Further analysis was completed to categorise constraints as either 'hard constraints' or 'soft constraints'. Hard constraints were defined as those features with formal protection as defined in legislation or adopted planning/industry guidance, whereas soft constraints were characterised as having potential to constrain the development but, subject to careful design consideration and/or mitigation measures, the Proposed Development could be accommodated.

3.3.8 A summary of the constraints analysis is illustrated in **Figure 3.1: Environmental Constraints (EIAR Volume 3a).** The Proposed Development turbine layouts considered throughout the design evolution process are presented in **Figure 3.2: Turbine Design Iteration (EIAR Volume 3a).**

3.4 Environmental Issues and Design Constraints

3.4.1 Following a baseline characterisation of the Site, the key environmental issues for consideration in the design process were identified. A summary of the key design considerations is provided in **Table 3.1**.

3.4.2 Issues were considered through design with the aim of 'designing out' significant effects. Where it is not possible to mitigate by design, the issues have been considered further as part of the EIA.

Table 3.1: Preliminary Site and Design Guidance for Neshion Energy Park		
Topic	**Analysis**	**Design Guidance**
Seascape, Landscape and Visual: Landscape Fabric	Predominant landcover and land uses in the Study Area range from open heather moorland and grassland on peaty soils which is used for rough grazing; small scale settlements and scattered dwellings; regionally important roads and access tracks; industrial areas and ferry ports.	▪ Minimisation of land take and disturbance of existing topography, landcover and landuses during construction and operational phases of the Proposed Development. ▪ Reinstatement of temporary disturbance caused by construction activities.
Seascape, Landscape and Visual: Landscape Character	Landscape Character: The key Landscape Character Types (LCT)/character units within the Study Area are: ▪ LCT 350: Peatland and Moorland (in which the Proposed Development is located); ▪ LCT 349: Major Uplands; ▪ LCT 351: Undulating Moorland and Lochs; and ▪ LCT 349 and 351, on North Roe, coincide with Ronas Hill and North Roe Wild Land Area (WLA) recognised for its remoteness, the absence of man-made artefacts (and consequently, its darkness at night). Seascape Character: The vast open horizontal form of the Seascape Character Units allows for large scale open panoramas, emphasising the importance of landmasses and distant hills that bound views. In this context vertical elements either on shore or in the marine environment can be particularly prominent and detract from the remote character of the seascapes. Sullom Voe Oil Terminal is a notable existing source of artificial light influencing the locality and in particular to the west and south where views of the complex are more open. There are few sources of artificial light in the wider area. The introduction of lighting on turbines would be different to the sources of light present in the baseline but would not be uncharacteristic of the locality and the contrast with baseline would be less notable. The lights may appear more noticeable in distant views where the immediate context is influenced less by artificial light. However, in such cases it is	▪ Avoid placing turbines on the high spot at the Hill of Crooksetter. ▪ Placement of turbines in flatter terrain and less distinctive terrain at the northern end of the Site to provide for a more consistent elevation for turbines. ▪ Placement of turbines at the northern end of the Site to take advantage of the elevated ground to the south that would provide a degree of screening in views from low-lying adjacent landscapes and seascapes. ▪ Placement of turbines away from key prominent slopes at the eastern side of the Site to minimise the incidence of turbines appearing to descend prominent slopes towards adjoining low-lying landscapes and seascapes. ▪ Concentration of turbines and infrastructure on gently graded land at northern end of Site where it is more closely associated with Oil Terminal on views from sensitive landscape and seascapes.

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Table 3.1: Preliminary Site and Design Guidance for Neshion Energy Park		
Topic	**Analysis**	**Design Guidance**
	likely that automatic dimming would be activated and the lights would be seen at 10% of maximum intensity.	
Seascape, Landscape and Visual: Visual Receptors	Visual receptors that could be significantly affected by the type of development proposed are generally situated close to the coastline, where the principal concentrations of settlement, transportation routes and tourism occur, including those offshore such as sea kayakers, boat and ferry passengers. Settlements in the Study area that are likely to be affected by the Proposed Development include: ▪ Mossbank; ▪ Firth; ▪ Toft and Brough; ▪ Ulsta; ▪ Hamnavoe and Lunna settlements; and ▪ Scattered properties by Garths Voe. Key transportation corridors within the Study Area include: ▪ The A968; ▪ The A970; ▪ The B9071; ▪ The B9076; and ▪ The B9079. Key Ferry routes within the Study Area include the: ▪ Toft-Ulsta ferry route; ▪ Vidlin-Bruray ferry route; and ▪ Vidlin-Laxo ferry route. There is likely to be visibility of the top of the wind turbine blade tips from coastal waters in the Yell Sound and further	In addition to the guidance for addressing landscape character, the following design guidance is suggested: ▪ Setting back the Proposed Development from key receptor locations such as settlements, roads and ferry routes and recreational routes.

Table 3.1: Preliminary Site and Design Guidance for Neshion Energy Park		
Topic	**Analysis**	**Design Guidance**
	out to the east towards Head of Lambhoga and Skaw Taing. Consequently, it is likely water-based receptors such as kayakers and users of other boats would have views of the wind turbines, and the lighting associated with the turbines. However, it is anticipated that the number and frequency of water-based receptors, particularly at night-time, would be very low. Transport corridors are located immediately adjacent to the Site, including the Toft-Ulsta ferry route, B9076 and A968. The Proposed Development may potentially adversely affect visual amenity for users of these corridors. The area also contains several unclassified roads, core paths, summits, hiking trails and areas for access to the WLA and Shetland National Scenic Area (NSA). The area is valued for its remoteness, undeveloped character and expansive views of exposed seascapes and ocean. The relatively simple, undulating landscape fabric allows for both small-scale natural features and distant summits to become key focal points. The tall turbines and turbine lights at night, may potentially have an adverse impact on these landscape visual qualities.	
Cultural Heritage: Designated Heritage Assets (and Non-Designated Heritage Assets of National Importance) within the Site	At the beginning of the design process, there were three non-designated heritage assets of national importance within the Site boundary. Following revisions to the Site boundary during the design process there are only two non-designated heritage assets of national importance within the Site boundary. At the beginning of the design process there were two Scheduled Monuments (a designated asset of national heritage value and high sensitivity) within the Site boundary: Scheduled Crooksetter Hill, chambered cairn at SE summit of (SM3576 - Asset 32) and Scheduled Crooksetter Hill, chambered cairn near NW summit of (SM3608 - Asset 35). Following revisions to the Site boundary during the design process there is only one Scheduled Monument (SM3608 – Asset 35) within the Site boundary.	▪ No groundbreaking works should take place within the Scheduled area, thus limiting the potential for direct impacts. ▪ Where possible, turbines should be sited to minimise impacts on the setting of the Scheduled Monuments within the Site boundary. ▪ A stand-off buffer has been suggested to minimise, as far as possible, the potential for significant impacts on setting. However, as the asset lies within the area of the Proposed Development there will remain the potential for significant impacts on its setting. Whilst there would be some loss of cultural significance it is considered that on balance there would be sufficient retention of the key characteristics of the setting of the cairns such that the ability to understand, appreciate and experience the asset and the contribution that setting makes to its significance would be adequately retained and thus would

Table 3.1: Preliminary Site and Design Guidance for Neshion Energy Park		
Topic	**Analysis**	**Design Guidance**
	Designated assets are protected by NPF4, Historic Environment Policy for Scotland (HEPS) and the LDP.	not result in a significant adverse impact upon the integrity of the asset's setting in terms of NPF4. ▪ A recommended minimum buffer of 200 m should be applied to Scheduled Crooksetter Hill, chambered cairn at SE summit of (SM3576 - Asset 32) and Scheduled Crooksetter Hill, chambered cairn near NW summit of (SM3608 - Asset 35).
Cultural Heritage: Non-Designated Heritage Assets within the Site (Regional or Local Importance)	There are five non-designated heritage assets within the Site: these include a sheepfold at Sand Water (Asset 93), the remains of Tronaster settlement (Asset 91), the remains of a field boundary (Asset 106), and two possible cairns identified on the walkover survey (Assets 119 and 120). Non-designated assets are generally of local or regional importance although some may have national importance, and are protected by NPF4, HEPS and the LDP. Non-designated assets have the potential to be subject to direct physical impacts from the Proposed Development. Impacts would relate to the removal (partial or whole) of these heritage assets through groundbreaking works and construction activities on Site. However, it is likely that mitigation either through avoidance or a programme of archaeological works that would ensure preservation by record would suffice to mitigate any such impacts. Where reasonably practicable, direct impacts on non-designated assets should be avoided.	▪ A recommended minimum buffer of 50 m should be applied to the Tronaster remains and 10m buffers to Sand Water sheepfold, and to the field boundary and potential cairns where possible. ▪ Where infrastructure will be located in close proximity to known assets but will not directly impact upon them, mitigation measures such as the temporary fencing-off, or marking-off, of assets to prevent inadvertent damage by plant movement during the construction phase may be required. ▪ Where assets cannot be avoided, potential direct impacts are likely to require mitigation through preservation by record undertaken through archaeological watching brief(s) or excavation.
Cultural Heritage: Designated Heritage Assets outwith the Site	There are a number of designated heritage assets that have been identified by the ZTV and site visits as having impacts to their settings as a result of the Proposed Development. These are generally prehistoric burial monuments on high ground or brochs which are intended to have intervisibility with each other.	▪ Where possible, turbines should be sited to minimise impacts on the settings of the Scheduled Monuments within the Site, specifically avoiding impacting the sightlines between the two Scheduled Monuments within the Site and also sightlines between Graven Cairn (Asset 16), and between the Fulga Ness Broch (Asset 6) and the Copister Broch (Asset 7).

Table 3.1: Preliminary Site and Design Guidance for Neshion Energy Park		
Topic	**Analysis**	**Design Guidance**
Ecology: Designated Sites	A total of 11 statutory designated sites are located within a 10 km radius of the Site. These include two Special Protection Areas (SPA), three Special Areas of Conservation (SAC), five sites of Special Scientific Interest (SSSI) and a single Ramsar Site. The closest designated sites to the Site are Yell Sound Coast SAC and SSSI and Sullom Voe SAC, which are locations within the northern extent of the Site.	▪ Design the development and construction methods to avoid or reduce any impacts on designated sites. No infrastructure or construction works should be in or near the designated sites. A minimum of a 30m buffer should be placed around the designated site to allow avoidance.
Ecology: Protected Species	Protected mammal surveys have identified the presence of otter and mountain hare within the Site. Otter are a European Protected Species (EPS). The Proposed Development has the potential to directly and/or indirectly impact upon otter during construction and operation. Mountain hare are protected by the Wildlife and Countryside Act 1981 (as amended). It is an offence to intentionally or recklessly: ▪ Kill, injure or capture a mountain hare; ▪ Disturb a mountain hare in its place of shelter; and/or ▪ Damage, destroy or obstruct access to a mountain hare's place of shelter. However, in the Shetland context, mountain hare are a non-native species. According to the GB Non-native Species Secretariat (NNSS) the Wildlife and Countryside Act states "Section 14(1) of the Act makes it illegal to release, allow to escape from captivity, or otherwise cause an animal to be at place outwith its native range."	▪ Design the development and construction methods to avoid damage or disturbance to otters or otter habitat, including avoiding any obstructions to established otter access to open water. ▪ Mark work exclusion zones around any holts and shelters. If otters are breeding, the zone should be at least 200m. However, it could be reduced to 100m depending on the nature of the works, topography and natural screening. This will require judgement from an experienced ecologist. For holts and shelters where otters are not breeding, the exclusion zone should be 30m. Where exclusion zones of the required size are not possible, works will require a licence from NatureScot before they can proceed. ▪ An otter protection plan would be produced post consent. ▪ There is no clear guidance regarding the protected species that are also non-native in the Shetland context, i.e. mountain hare. However, a mountain hare protection plan would be provided post-consent and a licence from NatureScot will be sought as needed.
Ecology: Peatland Habitat	Widespread peatland habitat is present across the Site, with varying conditions and depth of peat recorded via surveys. Total avoidance of peatland habitat is unlikely. Projects must follow the mitigation hierarchy as outlined in NPF4. Policy 5 sets out that development proposals will only be supported if they are (a) designed and constructed in accordance with the mitigation hierarchy and for	▪ Avoidance of near-natural blanket bog by all infrastructure. ▪ Avoidance of bog pools wherever possible. ▪ Minimise impacts on all bog habitats (including modified, drained and actively eroding).

Table 3.1: Preliminary Site and Design Guidance for Neshion Energy Park		
Topic	**Analysis**	**Design Guidance**
	peatland/carbon rich soils (c) (ii) for generation of renewable sources and (d) requirement for detailed site specific assessment. NatureScot guidance[5] should be considered/followed for example avoidance of bog pools and bog that "*shows evidence of being undisturbed and actively forming peat*".	▪ Use of floating roads where possible to minimise indirect impacts. ▪ Provision of suitable peatland restoration as part of the habitat management plan. Noting that NatureScot recommend a 1:10 ratio of lost: restored, plus 10% enhancement.
Ornithology	Red-throated diver, whimbrel, Arctic tern, curlew and Arctic skua have been recorded within the study area. Red-throated diver are a qualifying interest for the nearby East Mainland Coast SPA.	▪ By defining a 'no development zone' in the southern region and north-east region of the Site, high activity areas (habitat, breeding pairs and flight-lines) will be avoided. ▪ Turbines to be moved, where feasible, to avoid/be spaced further away from habitat/breeding locations and territories. ▪ A Breeding Birds Protection Plan (BBPP) would be prepared post consent and its implementation overseen by an Ecological Clerk of Works (ECoW). The BBPP would include measures such as the careful scheduling of works to avoid disturbance to birds during the breeding season.
Hydrology, Hydrogeology, Geology and Soils: Watercourses and Waterbodies	The Site is located within the Shetland Coastal Catchment. The northern extent of the Site primarily drains into the Aywick Burn flowing in a north-westerly direction and the Burn of Toft flowing eastwards. A small section of Burn of Crooksetter and its tributaries are located in the west of the Site. A section of Neshion Water is located in the east of the Site. The Site is bounded by Yell Sound (coastal waterbody) in the north west. Towards the southern end of the Site the topography gently undulates between 20 m Above Ordnance Datum (AOD) and 90 m AOD. The slackness of slopes in this part of the Site is associated with a number of lochans including Sand Water, Nugla Water and the Loch of Bordigarth and their connecting watercourses.	▪ 50 m standoff/buffer from waterbodies and watercourses to be applied. However, if this cannot be achieved, then those locations should be clearly identified and mitigation should be provided to protect the watercourses. ▪ Minimise number of track watercourse crossings. ▪ If required, use bottomless culverts or single-span bridges where feasible. These should be designed to the 1 in 200 year plus climate change event. ▪ Tracks should be perpendicular to watercourses at crossing points. ▪ Where possible watercourse crossings should avoid disrupting natural flows and aquatic habitats.

[5] NatureScot (2023) *Advising on peatland, carbon-rich soils and priority peatland habitats in development management*, published June; revised November 2023. Available at: https://www.nature.scot/doc/advising-peatland-carbon-rich-soils-and-priority-peatland-habitats-development-management [Accessed: August 2025]

Table 3.1: Preliminary Site and Design Guidance for Neshion Energy Park		
Topic	**Analysis**	**Design Guidance**
	Tributaries from the Burn of Laxobigging are also located in the south of the Site.	
Hydrology, Hydrogeology, Geology and Soils: Peat and Carbon Rich Soils	The Stage 1 and 2 peat probing survey confirmed that peat >0.5 m depth is present across 92% of the Site; and no peat (0 – 0.5 m depth) is present across 8% of the Site. Peat >1.0m depth is present at 80% of the Site. Total avoidance of peatland habitat is unlikely. Micrositing of turbines will likely be required to avoid deeper peat where feasible. Projects must follow the mitigation hierarchy as outlined in NPF4.	▪ Given the distribution of peat across the Site, it is not possible to fully avoid peat depths greater than 0.5 m. To minimise impacts to peat, prioritise the avoidance of areas of deeper peat within the Site, alongside avoidance of the peatland habitats as outlined in the Ecology: Peatland Habitats design guidance. ▪ Where it is not possible to avoid peat >1m then the design would seek to minimise by adopting alternative construction methodologies and carefully plan site drainage, use of floating tracks etc. ▪ It is likely that tracks will go through deeper peat >1m. Mitigation could be used for some tracks, through using floating tracks to minimise disturbance of peat/carbon rich soils.
Hydrology, Hydrogeology, Geology and Soils: Groundwater Dependant Terrestrial Ecosystems (GWDTE)	Small pockets with a high potential to be GWDTE located sporadically throughout the Site. Potential for direct loss of GWDTE. Risk of groundwater flow disruption and changes to hydrological regimes affecting habitats.	▪ Hydrological and hydrogeological assessment shows that the habitats identified as potential GWDTE are not GWDTE. As such, specific design guidance is not required. ▪ Where the habitats are clearly linked to either rainfed systems or surface watercourses/features, they should not be treated as a design constraint.
Hydrology, Hydrogeology, Geology and Soils: Flood Risk	Areas of high risk of fluvial flooding are located around the Lochs in the south of the Site. High risk of surface water flooding surrounds the Burn of Toft and its tributaries in the northeast of the Site. Aywick Burn in the north of the Site is shown to be at high risk of surface water flooding with isolated areas of surface water risk surrounding the burn. There is the potential for increased runoff or alternation of natural drainage patterns causing localised flooding.	▪ Avoidance of turbines and infrastructure within Flood Zones (e.g. 1 in 200 year floodplains). ▪ Where possible incorporate Sustainable Drainage Systems (SuDS) in the Site drainage strategy.
Noise and Vibration: Noise Assessment Locations (NAL)	No properties have been identified as high risk based on the Scoping layout and candidate turbine. Four NALs located	▪ The design should avoid placing turbines closer to the properties to the east (with reference to the scoping layout).

Table 3.1: Preliminary Site and Design Guidance for Neshion Energy Park		
Topic	**Analysis**	**Design Guidance**
	near Toft are close to the fixed minimum limit, and are considered medium risk. All other properties are considered low risk for wind farm noise. For context, there is no fixed set back distance for NALs, but the noise limits are a hard constraint. This constraint however, can be managed through mitigation to not exceed the noise limit at a property.	
Aviation: Lockheed Martin TPS-77 Air Defence Radar	A Lockheed Martin TPS-77 air defence radar is located at Remote Radar Head (RRH) Saxa Vord, 45 km north north east of the Site.	▪ Standard mitigation for air defence radars of designating a Non-Auto Initiation Zone around the wind farm is expected to be accepted by the Ministry of Defence (MoD). Requires commissioning of a mitigation feasibility study from Serco.
Telecommunications	The following telecommunications links are located within the Site: ▪ SIC Link located through northern region of Site. ▪ A Mobile Broadband Network Ltd (MBNL) Link located in southern region of Site. ▪ Joint Radio Company (JRC) Link located in southern region of Site. JRC analysis report advises moving of turbines within the exclusion zone around this link.	▪ Design mitigation likely to be possible, where possible keep blade tips 100 m + from links. ▪ Design mitigation for the JRC links not possible other than deleting or moving the turbines outside the exclusion zone.
Traffic and Transport	The main transport impacts would be associated with the movement of general Heavy Goods Vehicle (HGV) (and Light Goods Vehicle (LGV)) traffic travelling to and from the Site during the construction phase of the Proposed Development. Each turbine is likely to require between 11 and 13 abnormal loads to deliver the components to Site. The components would be delivered on extendable trailers which would then be retracted to the size of a standard HGV for the return journey.	▪ It is proposed that access would be taken from the west of the Site via an unadopted road to Shetland Gas Plant (which is accessed via the B9076).

3.5 Design Evolution and Alternative Layouts

3.5.1 **Figures 3.1: Environmental Constraints (EIAR Volume 3a)** summarises the Proposed Development design evolution from the initial scoping layout to the design freeze layout. During the design evolution process, three design iterations and revisions were produced. The following paragraphs explain the changes made through the three main design iterations.

Layout 1: Scoping Layout (10 Turbines)

3.5.2 The Scoping Layout represented the layout that was developed based on an initial desk-based constraints review, taking account of the following:

- the outcome of the feasibility study which identified a 'preferred design envelope' in the northern section of the Site; and
- mapping of constraints including cultural heritage assets, watercourses and residential properties.

3.5.3 At this stage in the Site's design, it was considered that the Site could theoretically accommodate up to 10 turbines up to a 200 m maximum tip height.

Layout 2: Design Chill Layout (8 Turbines)

3.5.4 Following the Scoping stage, further environmental constraint information was gathered and led to the development of an amended layout, which was identified in response to the following:

- initial noise modelling of Layout 1 (Scoping Layout);
- community feedback following the initial public consultation period in March 2025;
- results of the Stage 1 peat probing survey; and
- the findings of the ornithology surveys and initial ecology surveys.

3.5.5 As a result of a review of the constraints and feedback outlined above, the following turbine movements were made:

- Turbine 1 was moved south west to avoid ornithology constraints including breeding locations, territories and key flight lines;
- Turbine 2 was moved south west into an area of shallower peat to maintain a 200 m buffer distance from an otter holt in the west, and to maintain spacing with Turbine 1 and Turbine 5;
- Turbine 3 was moved south west to avoid ornithology constraints including breeding locations, territories and key flight lines, and to avoid deep peat;
- Turbine 4 was moved south west to avoid the SIC link buffer zone; ornithology constraints including breeding locations, territories and key flight lines; and to be in shallower peat;
- Turbine 5 was moved south west to be in shallower peat and to maintain watercourse buffer zones;
- Turbine 6 was removed due multiple constraints including deep peat, proximity to watercourses and proximity to key ornithological territory centres;
- Turbine 7 was moved south west to be in shallower peat and to tuck the turbine into the turbine array;
- Turbine 8 was moved west to be in shallower peat and maintain distance from near-natural peat habitat;
- Turbine 9 was moved north-west to be in shallower peat; and

- Turbine 10 was removed as a result of being located in deep peat, its proximity to watercourses, to reduce setting impacts between chambered cairns (Scheduled Monuments) and to reduce impact on breeding curlew.

3.5.6 Overall, two turbines were removed resulting in an eight turbine layout.

3.5.7 Based on the layout changes outlined above, the civil engineering team prepared internal site tracks and infrastructure. During this process, the layout was refined through micrositing of turbines to optimise internal track and infrastructure alignment, whilst taking into consideration known environmental and engineering constraints, as well as maintaining turbine spacing to maximise wind resource potential. Locations within the Site for construction compounds, substations, BESS and borrow pits were also identified.

3.5.8 As part of the design development, alternative alignments for the main access track were considered. Routing the track closer to the turbine array was considered, however, the steepness of the topography in this area would have required extensive earthworks which were anticipated to result in a prominent scar on the landscape. To avoid this, a longer, but less steep main access track was selected. In addition, turbine hardstandings and site tracks were orientated to avoid near-natural peatland and to minimise earthworks where possible.

3.5.9 At this stage, the application boundary for the Proposed Development was adjusted to more accurately reflect the revised layout and extent of the infrastructure.

3.5.10 The design chill layout is shown on **Figure 3.3: Layout Design Evolution (EIAR Volume 3a)**.

Layout 3: Gate Check Layout (8 Turbines)

3.5.11 The Gate Check layout, as presented in the Energy Consents Unit (ECU) Gate Check Report, was shared with statutory consultees for feedback before finalising the design. Changes to the layout were made in response to the following:

- Results of Stage 2 peat probing survey;
- Results of peatland habitat walkover survey; and
- Further consideration of peatland habitats, watercourse crossings and site topography.

3.5.12 In response to the constraints outlined above, the following turbine movements were made:

- Turbine 3 and its hardstanding were moved north west to minimise impacts on actively eroding peat;
- Turbine 4 hardstanding was moved south west and inverted to minimise impacts on actively eroding peat;
- Turbine 5 and its hardstanding were moved north to avoid a telecommunication link buffer zone and to minimise impacts on bog pool habitats;
- Turbine 7 hardstanding orientation was adjusted slightly to accommodate a change in access between Turbine 7 and Turbine 4;
- Turbine 8 and its hardstanding were moved south west to accommodate change to the Turbine 8 access, allowing the turbine and hardstanding to better align with the topography to minimise earthworks; and
- Turbine 9 and its hardstanding were moved north east and re-oriented to avoid near-natural peat habitat and watercourse buffers.

3.5.13 In addition, in response to the constraints outlined above, access track design amendments were made as outlined in **Table 3.2**.

Table 3.2: Gate Check Layout – Design Elements Changes	
Design Element	**Changes**
Site Entrance to Turbine Array Access Track	Northern extent of the track was realigned to the west to minimise impacts actively eroding peat.
Turbine 8 Access Track	Realigned to the west to avoid crossing a watercourse.
Turbine 8 to Turbine 5 Access Track	Realigned to the west to avoid passing between two areas of near-natural peat habitat in proximity to Turbine 8.
Turbine 5 to Turbine 2 Access Track	Realigned slightly to accommodate changes to Turbine 5 position and hardstanding orientation.
Turbine 2 to Turbine 1 Access Track	No change.
Turbine 3 Access Track	New access track alignment to allow Turbine 3 to be accessed from the north to accommodate changes to Turbine 3 position and hardstanding orientation.
Turbine 1 to Turbine 4 Access Track	Realigned to the east to accommodate changes to Turbine 3 access and Turbine 4 hardstanding amendments.
Turbine 4 to Turbine 7 Access Track	Realigned north to minimise impacts on two areas of actively eroding peat.
Turbine 7 to Turbine 9 Access Track	Realigned slightly to the south to accommodate changes to Turbine 9 position and hardstanding orientation.
Turbine 9 to Site Entrance Access Track	New access track to connect to Turbine 9, to be used for operation and maintenance only, to minimise impacts on actively eroding peat.
BESS & Substation	Search areas reduced to two approx. 0.48 ha areas to minimise impacts on bog pool habitats.
BESS & Substation Access Track	Realigned to minimise impacts on bog pool habitats.
Construction Compounds	Search areas reduced to two approx. 0.5 ha areas.

Layout 4: Design Freeze Layout (8 Turbines)

3.5.14 Following feedback from statutory consultees on the Gate Check report and layout, the following design amendments were made to minimise impacts on peatlands and to address engineering constraints:

- Turbine 3 was moved north west and its hardstanding reorientated to align with the main access track and minimise peat excavation;
- The access track arrangements at Turbine 1, Turbine 7 and Turbine 8 were rationalised to remove the triangle track arrangement and minimise peat disturbance;
- The Turbine 1 to Turbine 3 access track was realigned to accommodate changes to Turbine 3 position and hardstanding orientation;
- The Turbine 3 to Turbine 4 access track was realigned to accommodate changes to Turbine 3 position and hardstanding orientation; and
- The northern borrow pit and temporary access track was removed to minimise peat disturbance.

3.5.15 The amendments resulted in an 8 turbine layout, and turbines were re-numbered as presented in **Table 3.3** below. The re-numbered layout is shown in **Figure 2.1: Site Layout (EIAR Volume 3a)**.

Table 3.3: Summary of Turbine Numbering

Layout 1: Scoping Layout	Layout 2: Design Chill Layout	Layout 3: Gate Check Layout	Layout 4: Design Freeze Layout	Proposed Development Turbine Numbering
1	1	1	1	4
2	2	2	2	3
3	3	3	3	5
4	4	4	4	6
5	5	5	5	2
6	Removed			
7	7	7	7	7
8	8	8	8	1
9	9	9	9	8
10	Removed			

3.6 Summary of Preferred Option

3.6.1 The preferred option taken forward for assessment is Layout 4: Design Freeze Layout as presented in **Chapter 2: Development Description (EIAR Volume 2)** and shown in **Figure 2.1: Site Layout (EIAR Volume 3a).**

3.6.2 By following the design guidance described in **Table 3.1**, the number of turbines was reduced from 10 to 8 and sited to reduce potential impacts with respect to landscape, views and heritage features, deep peat and other constraints as listed in **Section 3.4**. Further, the infrastructure footprint has been optimised to minimise overall track length and the number of watercourse crossings where practicable. Likely significant effects have been avoided or reduced as far as reasonably practicable through the design process.

4 Seascape, Landscape and Visual

4.1 Executive Summary

4.1.1 This chapter presents the Seascape, Landscape and Visual Impact Assessment (SLVIA) for the Proposed Development. It considers the likely significant effects arising during construction and operation on landscape fabric, landscape character, coastal character, designated and classified landscapes, and visual amenity, including effects on settlements, roads, ferry routes, core paths and representative viewpoints.

4.1.2 The assessment identifies that effects are concentrated primarily within the local host landscape and those areas with direct views towards the Site, particularly around Yell Sound and nearby settled areas. During construction, effects would generally be localised, temporary and largely reversible. During operation, the most notable effects would arise from the introduction of the proposed turbines as notable new features in views from parts of the surrounding area; however, many effects are moderated by distance, landform screening and the existing influence of development associated with Sullom Voe Oil Terminal (SVT) and other established infrastructure.

4.1.3 During construction there would be temporary and short-term adverse significant residual effects on landscape fabric at the Site.

4.1.4 There would be no significant effects on landscape character, visual amenity and landscape designations due to the short duration of construction works and the indirect nature of effects.

4.1.5 During operation of the Proposed Development there would be significant effects on landscape character within approximately 5-8 km of the Proposed Development. Where significant effects are predicted this is a result of a small number of key characteristics being affected or in a limited part of the affected unit.

4.1.6 During operation of the Proposed Development there would be significant adverse effects on coastal character areas within approximately 6 km.

4.1.7 Effects on Landscape Character Types (LCTs) and Coastal Character Areas (CCAs) in the wider study area would be not significant due to intervening distance, the influence of existing development at SVT or limited visibility of the Proposed Development.

4.1.8 During operation there would be significant adverse effects on the following visual receptors:

- The northern most part of Mossbank;
- Settlement in the Scatsta, Graven and Garth area;
- Settlement at Ollaberry and North Gluss area;
- Settlement at Housetter;
- Settlement on Lunna peninsula;
- Settlement at Ulsta, Copister and West Yell;
- A short section of the A968;
- A short section of the B9076;
- The B9079 at Ollaberry;
- The B9081 at Ulsta;
- Toft-Ulsta ferry route;
- Core path CPPFe03 in the northeast of Mossbank;
- Core path CPPN13 at Ollaberry;

- Core path CPPNL04 on Lunna peninsula; and
- NCN 1 at Scatsta, Houb of Scatsta and the A968 junction with the B9076

4.1.9 During operation significant adverse effects are predicted at the following viewpoints used in the LVIA:

- Viewpoint 3: Ollaberry, St Magnus Church;
- Viewpoint 4: Yell, Ulsta Shetland Ferry Terminal;
- Viewpoint 5: Parking at Outrabister, Lunna Ness;
- Viewpoint 7: Brough;
- Viewpoint 8: Ferry Port Toft;
- Viewpoint 9: Vantage Point by Houb of Scatsta;
- Viewpoint 10: Cairn at Hill of Graven;
- Viewpoint 11: Minor Road between Southlee and Graven;
- Viewpoint 12: Crooksetter Hill Chambered Cairn near NW Summit of SM3608;
- Viewpoint 13: North Gluss;
- Viewpoint 18: Yell A968/NCR1;
- Viewpoint 20: A968/NCR1 South of Firths Voe;
- Viewpoint 21: Mossbank;
- Viewpoint 22: Ollaberry;
- Viewpoint 25: Toft; and
- Viewpoint 26; Yell Ferry Route

4.1.10 These viewpoints are all situated within approximately 9 km of the nearest proposed turbine.

4.1.11 There would be significant effects on only one Shetland National Scenic Area (NSA) Special Landscape Quality (SLQ) and only in the North Roe NSA area. The integrity of the NSA would not be compromised.

4.1.12 There would be no significant effects on any Local Landscape Areas (LLA) and the integrity of these LLA would not be compromised.

4.1.13 There would be no significant adverse night-time effects on landscape receptors.

4.1.14 There would be significant adverse night-time effects on a small part of Mossbank in the northern most part of the village and at Ulsta on Yell. There would be significant night-time effects from the external areas of four properties at Toft and there would be significant night-time effects on a short section of the A968 at Ulsta.

4.1.15 The residential visual amenity assessment finds that effects at none of the 11 properties assessed within 2 km of the nearest proposed turbine would reach the residential visual amenity threshold.

4.1.16 The assessment of cumulative operational effects focussed on in-addition effects arising from consented sites and sites in planning. Scoping sites were not considered. While the assessment identified significant cumulative effects these would be no greater than effects assessed in the Solus assessment and would extend across a similar geographical area.

4.1.17 Overall, the chapter concludes that the Proposed Development would result in significant localised seascape, landscape and visual effects, but that these are contained within a limited area and have been reduced where possible through embedded design mitigation.

4.2 Introduction

4.2.1 This chapter considers the likely significant effects on the landscape, seascape and visual resource associated with the construction and operation of Neshion Energy Park ('the Proposed Development').

4.2.2 The Proposed Development is a renewable energy development comprised of up to eight wind turbines, a Battery Energy Storage System (BESS) and associated infrastructure adjacent to Sullom Voe Oil Terminal (SVT) and the Shetland Gas Plant in Shetland, Scotland. The assessment is based on the Proposed Development as described in **Chapter 2: Proposed Development (EIAR Volume 2)**.

4.2.3 The chapter comprises:

- A description of the scope and assessment methodology and significance criteria used in completing the impact assessment
- A description of the existing landscape, seascape and visual baseline context and cumulative context against which to assess the effects of the Proposed Development, along with sensitive receptors that form priorities for consideration in the design and mitigation of the Proposed Development
- A description of impact generators associated with the construction and operation of the Proposed Development as well as an analysis of potential landscape, seascape and visual effects
- A description of the design and mitigation measures proposed to address potential significant effects
- An assessment of residual landscape, seascape and visual effects remaining taking account of proposed mitigation measures

4.2.4 The assessment has been carried out by Ross Allan CMLI who is a Managing Consultant and Associate Landscape Planner at Ramboll with 25 years of experience in Landscape and Visual Impact Assessment (LVIA) and has competed Seascape, Landscape and Visual Impact Assessment (SLVIA) for similar projects including one in Orkney. Support was provided by Sofia Chrsitina Leith, Landscape Architect at Ramboll, who also has experience in supporting LVIA of other renewables and grid connection projects in Scotland.

4.2.5 This chapter is supported by the following figures and technical appendices:

- Volume 3a: Figures
  - **Figure 4.1: Location Plan and SLVIA Study Area**
  - **Figure 4.2: Topography**
  - **Figure 4.3: Zone of Theoretical Visibility (45km) Tip Height**
  - **Figure 4.4: Zone of Theoretical Visibility (45 km) Hub Height**
  - **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height**
  - **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height**
  - **Figure 4.7a: Landscape Character Types**
  - **Figure 4.7b: Landscape Character Types with ZTV**
  - **Figure 4.8a: Coastal Character Areas**
  - **Figure 4.8b: Coastal Character Areas with ZTV**
  - **Figure 4.9: Visual Receptors**
  - **Figure 4.10: Landscape Designations (NSA, LLA) and Wild Land Areas with Tip Height ZTV**
  - **Figure 4.11: Relative Wildness**
  - **Figure 4.12: Shetland National Scenic Area and Hub Height ZTV**

  - **Figure 4.13a: Shetland National Scenic Area and Hub Height ZTV – Detailed Assessment – North Roe**
  - **Figure 4.13b: Shetland National Scenic Area and Hub Height ZTV – Detailed Assessment – Eshaness**
  - **Figure 4.13c: Shetland National Scenic Area and Hub Height ZTV – Detailed Assessment – Muckle Roe**
  - **Figure 4.14: Cumulative Location Plan**
  - **Figure 4.15: Cumulative ZTV – Neshion with Operational Sites**
  - **Figure 4.16: Cumulative ZTV – Neshion with Viking (Operational)**
  - **Figure 4.17: Cumulative ZTV – Neshion with Garth (Operational)**
  - **Figure 4.18: Cumulative ZTV – Neshion with Consented Sites**
  - **Figure 4.19: Cumulative ZTV – Neshion with Beaw Field (Consented)**
  - **Figure 4.20: Cumulative ZTV – Neshion with Energy Isles (Consented)**
  - **Figure 4.21: Cumulative ZTV – Neshion with In Planning Sites**
  - **Figure 4.22: Cumulative ZTV – Neshion with Sullom Voe (In Planning)**
- Volume 3b: Visualisations
  - **Figures 4.23a-f to 4.48a-f: Viewpoints 1 to 26**
- Volume 4: Technical Appendices
  - **Technical Appendix 4.1: Seascape, Landscape and Visual Assessment Methodology;**
  - **Technical Appendix 4.2: Landscape Character Types Sensitivity Assessment;**
  - **Technical Appendix 4.3: Coastal Character Areas Sensitivity;**
  - **Technical Appendix 4.4: Viewpoint Assessment;**
  - **Technical Appendix 4.5: Designations and Classifications Sensitivity Assessment;**
  - **Technical Appendix 4.6: Shetland National Scenic Area Special Landscape Qualities Assessment;**
  - **Technical Appendix 4.7: Residential Visual Amenity Assessment; and**
  - **Technical Appendix 4.8: Aviation Lighting Assessment.**

4.2.6 Figures and technical appendices are referenced in the text where relevant.

4.3 Assessment Methodology

Overview

4.3.1 The SLVIA methodology is detailed in **Technical Appendix 4.1: Seascape, Landscape and Visual Assessment Methodology (EIAR Volume 4)** and follows the principles set out in Guidelines for Landscape and Visual Impact Assessment[1].

4.3.2 The assessment is presented with reference to specific 'areas' of the Site. These areas comprise the turbine array, access route and internal access tracks as described in **Chapter 2: Description of Proposed Development (EIAR Volume 2).**

[1] Landscape Institute and Institute of Environmental Management and Assessment. (2013) Guidelines for Landscape and Visual Impact Assessment, Third Edition.

Scope of Assessment

Potential Impacts Scoped In

4.3.3 The scope of the assessment has been informed by consultation responses detailed in **Technical Appendix 1.1: Consultation Register (EIAR Volume 4).**

4.3.4 The scope of this chapter is set out in **Table 4.1**.

Table 4.1: Impacts Considered in the Assessment

Impact	Phase*	
	C	O
Impacts on landscape fabric	X	X
Impacts on landscape character	X	X
Impacts on coastal character	X	X
Impacts on Shetland NSA: ▪ North Roe Area; ▪ Eshaness Area; and ▪ Muckle Roe Area. The following Special Landscape Qualities (SLQ) in those three areas: ▪ SLQ 2 Coastal views both close and distant; ▪ SLQ 3 Coastal settlement and fertility within a large hinterland of unsettled moorland and coast; ▪ SLQ 4 The hidden coasts; and ▪ SLQ 6 A sense of remoteness, solitude and tranquillity.		X
Impacts on the following Local Landscape Areas (LLA): ▪ LLA 1 Ronas Hill; ▪ LLA 2 Nibon and Mangaster; ▪ LLA 12 Lunna Ness and Lunning; and ▪ LLA 17 West Sandwick to Gloup Holm.		X
Impacts on settlements and communities	X	X
Impacts on recreational routes	X	X
Impacts on key transport routes	X	X
Impacts on agreed viewpoints and visual amenity	X	X
Impacts of aviation obstacle lighting		X

*C=construction, O=operation and maintenance, x = denotes potential impact considered in assessment.

4.3.5 The chapter assesses cumulative effects as arising from the addition of the Proposed Development to other cumulative developments, which are the subject of a valid planning application. Operational and under construction developments are considered as part of the baseline. Developments close to the end of their operational life will be included as part of the baseline to present a 'worst case scenario'.

4.3.6 Scoping sites are not considered in this SLVIA as there is only one site at Scoping, Girlsta Wind Farm proposal, which comprises three wind turbines each 149.9 m to tip. Girlsta would be situated approximately 23 km to the south of the Proposed Development and 1 km to the south of the nearest operational turbine of Viking Wind Farm. Given the separation distance between the Proposed Development and Girlsta and the influence of operational Viking Wind Farm, with which Girlsta would be associated, it is not considered further in this assessment.

4.3.7 As recommended by NatureScot cumulative guidance, the aim is to identify the "*additional cumulative change which would be brought about by the proposed development."* The cumulative assessment therefore concentrates on 'in-addition' effects and describes 'in-combination' effects only where relevant.

4.3.8 The assessment is based on the Proposed Development as described in **Chapter 2: Description of Proposed Development (EIAR Volume 2)**.

Legislation and Policy Context

4.3.9 The scope and approach adopted in the SLVIA also reflects a number of relevant national and regional planning policies, as follows.

RELEVANT NATIONAL PLANNING FRAMEWORK 4 (NPF4) POLICIES[2]

4.3.10 Policy 4 (Natural Places) Paragraph (c) deals with national designations including National Scenic Areas (NSA), Sites of Special Scientific Interest (SSSI) and National Parks. The policy requirement is that development will only be supported where:

- "the objectives of designation and the overall integrity of the areas will not be compromised
- Any significant adverse effects on the qualities for which the area has been designated are clearly outweighed by social, environmental or economic benefits of national importance"

4.3.11 Policy 4 (Natural Places) Paragraph (d) relates to proposals that would affect a local designated site within a Local Development Plan (LDP), such as a Local Landscape Area (LLA) or a nature conservation site, and it states that:

- "Development will not have a significant adverse effect on the integrity of the area or the qualities for which it has been identified
- Any significant adverse effects on the integrity of the area are clearly outweighed by social, environmental, economic benefits of at least local importance"

4.3.12 Regarding wild land the second half of NPF4 Policy 4, Paragraph (g) states that:

"Buffer zones around wild land will not be applied, and effects of development outwith wild land areas (WLAs) will not be a significant consideration."

4.3.13 Policy 11 Energy, section (d) states that "*development proposals that impact on international or national designations will be assessed in relation to Policy 4."*

4.3.14 Policy 11 section (e) sets out that project design and mitigation will demonstrate how a number of impacts are addressed. These include:

- "Impacts on communities and individual dwellings, including, residential amenity, visual impact, noise and shadow flicker
- Significant landscape and visual impacts, recognising that such impacts are to be expected for some forms of renewable energy. Where impacts are localised and/or appropriate design mitigation has been applied, they will generally be considered to be acceptable
- public access, including impact on long distance walking and cycling routes and scenic routes
- impacts on trees, woods and forests

[2] Scottish Government (2023). National Planning Framework 4. [online] Available at: https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2023/02/national-planning-framework-4/documents/national-planning-framework-4-revised-draft/national-planning-framework-4-revised-draft/govscot%3Adocument/national-planning-framework-4.pdf. [Accessed 15/04/2026]

- proposals for the decommissioning of developments, including ancillary infrastructure, and site restoration
- cumulative impacts."

LOCAL PLANNING POLICY

4.3.15 Shetland Islands Council (2014) Local Development Plan (SIC LDP)[3] is the adopted Local Development Plan. Key policies of relevance for this assessment are described below.

4.3.16 General Policy GP2 General Requirements for All Development. Section 'a' of the policy states that "*Developments should not adversely affect the integrity or viability of sites designated for their landscape and natural heritage value.*"

4.3.17 General Policy GP3 All Development: Layout and Design. The policy advises that "*All new development should be sited and designed to respect the character and local distinctiveness of the site and its surroundings. The proposed development should make a positive contribution to:*

- maintaining identity and character
- ensuring a safe and pleasant space
- ensuring ease of movement and access for all
- a sense of welcome
- long term adaptability
- good use of resources

4.3.18 General Policy GP3 also states that development should be sited to harmonise with the key features of the surrounding area with particular attention being made to massing, form and design details, particularly within sensitive areas such as Conservation Areas, the NSA, LLAs, Historic Landscapes and where the setting of Listed Buildings and Scheduled Ancient Monuments may be affected.

4.3.19 Policy NH1 International and National Designations. "*Development that affects a National Scenic Area (NSA), National Nature Reserve (NNR) or a Site of Special Scientific Interest (SSSI) will only be permitted where:*

- It will not adversely affect the integrity of the area or the qualities or protected features for which it has been designated
- Any such adverse effects are clearly outweighed by social, environmental or economic benefits of national importance

4.3.20 Policy NH4 Local Designations "*Development that affects a Local Nature Conservation Site or Local Landscape Area will only be permitted where:*

- It will not adversely affect the integrity of the area or the qualities for which it has been identified
- Any such effects are clearly outweighed by social, environmental or economic benefits

4.3.21 RE1 Renewable Energy. "*Proposals for renewable energy developments will be supported where it can be demonstrated that there are no unacceptable impacts on people (benefits and disbenefits for communities and tourism and recreation interests) the natural and water environment, landscape, historic environment and the built environment and cultural heritage of Shetland.*

[3] Shetland Island Council (2014). Local Development Plan. [online] Available at: https://www.shetland.gov.uk/planshetland [Accessed 02/06/2026]

4.3.22 *All proposals for renewable energy developments will be assessed with consideration of their cumulative impacts."*

Potential Impacts Scoped Out

4.3.23 The assessment focusses on likely significant effects and as such impacts that are not likely to result in significant effects have been scoped out of the assessment. A summary of the impacts scoped out, together with reasoning for scoping them out is presented in **Table 4.2**.

Table 4.2: Impacts Scoped Out of the Assessment

Impact	**Reasoning**
Impacts on Wild Land Areas	The Proposed Development is not situated in a WLA and in line with NPF4 Policy the effects of development outwith areas of wild land are not a significant consideration. The wild land qualities of Ronas Hill and North Roe have been accounted for in the assessment of landscape character.
Impacts on the following Shetland NSA Areas: ▪ Hermaness; ▪ South West Mainland; ▪ Foula; and ▪ Fair Isle	No likely significant effects due to a combination of intervening distance, absent or very limited potential visibility.
Impacts on the following Shetland NSA SLQ: ▪ SLQ1 The stunning variety of the extensive coastline; ▪ SLQ5 The effects and co-existence of wind and shelter; ▪ SLQ7 The notable and memorable coastal stacks, promontories and cliffs; ▪ SLQ8 The distinctive cultural landmarks; and ▪ SLQ9 Northern light.	No likely significant effects due to these SLQ not being susceptible to change from the Proposed Development.

Method of Baseline Characterisation

Extent of the Study Area

4.3.24 The Study Area for the SLVIA comprises a 45 km radius area from the outermost proposed turbine. Given the pattern of visibility shown in the Zone of Theorical Visibility (ZTV) (**Figure 4.3-4.6 (EIAR Volume 3a)**) and taking into account the existing Viking Wind Farm in the southern part of the Study Area, significant landscape, seascape and visual effects are more likely within 20-30 km of the Proposed Development.

4.3.25 The Study Area for the assessment of effects of aviation lighting is 20 km from the outermost proposed turbine which is in line with NatureScot guidance[4].

4.3.26 The Study Area for the assessment of effect on residential visual amenity is 2 km from the outermost proposed turbine which is in line with Landscape Institute guidance[5].

Desk Study

4.3.27 A preliminary desk study was undertaken to establish the baseline context of the Site, including the physical components of the landscape (i.e. landscape fabric) as well as the distinctive and recognisable pattern of features that form the landscape and seascape

[4] NatureScot (2024). Guidance on Aviation Lighting Impact Assessment.

[5] Landscape Institute (2019b). Technical Guidance Note 2/19 Residential Visual Amenity Assessment.

character of the area, and the special qualities of designated and valued landscapes within the Study Area.

4.3.28 Potentially sensitive visual receptors were also identified. This includes residents of settlements, dispersed residential properties, users of transportation corridors and recreational receptors on core paths and hills.

4.3.29 The landscape and visual receptors considered in the baseline and subsequent assessment were derived from the following sources:

- NatureScot Landscape Character Assessment – 2019 online database
- University of the Highlands and Islands Shetland (2021). Shetland Coastal Character Assessment.
- Commercially available aerial photography
- Field reconnaissance
- Site photography

4.3.30 Descriptions of landscape designations and classifications were sourced from the following publications:

- Scottish Natural Heritage (SNH) (2010). The Special Qualities of the National Scenic Areas. Scottish Natural Heritage Commissioned Report No. 374 (iBids and Project no 648)
- Scottish Natural Heritage, Description of Wild Land Areas (2019)
- Shetland Islands Council (2014). Supplementary Guidance Local Landscape Areas Consultation Draft

4.3.31 The following datasets have also been used in the preparation of the SLVIA:

- Ordnance Survey 1:25,000, 1:50,000 and 1:250,000 mapping
- Visibility calculated using 5 m Ordnance Survey (OS) terrain data (computer generated ZTVs)

Field Survey

4.3.32 Fieldwork was undertaken in summer of 2024, throughout 2025, and early 2026 to 'groundtruth' and verify the findings of the preliminary desktop study. The visits were used to:

- augment and verify published descriptions of landscape and seascape character with fieldwork observations
- undertake an assessment of the quality or condition of baseline landscape and visual resources
- identify any significant features and elements in the landscape such as vegetation or built form that would screen the Proposed Development and thereby verify or refine the ZTV;
- visit each viewpoint location to microsite each location in accordance with good practice guidance and obtain accurate coordinates
- undertake photography at each viewpoint location. The selected viewpoints were visited and evaluated using draft wirelines and visualisations
- identify landscape features and elements that may be altered or removed as a result of the Proposed Development

4.3.33 The baseline fieldwork also allowed the scope of the SLVIA to be refined and therefore allowed the focus of the assessment stage of the SLVIA to be placed on receptors with the most

potential for a significant effect. Fieldwork during the assessment stage included an assessment of effect on the following receptors:

- Landscape receptors including landscape fabric, landscape character, and landscape designations & classifications
- Residential receptors (including settlements), road users, recreational receptors (including hill walkers and users of core paths, other footpaths/cycleways), and recreational areas
- Night-time effects through a dawn/dusk and night-time survey within a 20 km radius of the proposed turbines.

Illustrative materials

4.3.34 The LVIA is illustrated by a range of tools including ZTV plans, photographs, wirelines, and photomontages. All outputs have been prepared in accordance with current best practice comprising:

- Visual Representation of Wind Farms Guidance, version 2.2, NatureScot 2017
- Landscape Institute (2019) Technical Guidance Note – 06/19 Visual Representation of Development Proposals

4.3.35 ZTVs have been prepared to assist in the identification of areas from where there is potential visibility of the Proposed Development. ZTVs are based on OS digital terrain data supplied as a mixture of gridded height data at 5 m and 50 m interval resolution. This data does not reflect the screening effect of vegetation or built structures and so the visibility shown on the ZTVs is more extensive than would be experienced in reality. Where the ZTV shows no visibility, it is predicted that no turbines would be seen.

4.3.36 The blade tip ZTVs (**Figure 4.3: Zone of Theoretical Visibility (45 km) Tip Height** and **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height (EIAR Volume 3a)**) illustrates the extent of theoretical visibility of the Proposed Development based on the visibility of turbines from base to maximum blade tip. The hub height ZTVs (**Figure 4.4: Zone of Theoretical Visibility (45 km) Hub Height** and **4.6: Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)**) show locations from which turbines would be visible at least up to nacelle height. This makes it possible to identify locations from where the Proposed Development would be seen as blade tips only and would therefore be less prominent.

4.3.37 In order to establish the cumulative theoretical visibility, ZTVs have been prepared for all operational, consented and application stage wind farm projects within 45 km of the Site (**Figure 4.14: Cumulative Location Plan (EIAR Volume 3a)**). The cumulative ZTVs are included in **Figures 4.14 to 4.22 (EIAR Volume 3a)**.

4.3.38 Wireline visualisations (**Figures 4.23a to 4.48f (EIAR Volume 3b)**) illustrate both the baseline wind farms (operational and under construction) from each viewpoint, and the cumulative wind farms, which includes consented, application stage, and the scoping stage wind farms.

Method of Assessment

Overview

4.3.39 The LVIA considers effects on the following:

- Landscape fabric, caused by changes to the physical form and elements of the landscape

- Landscape and coastal character, caused by changes in the pattern of key characteristic features and elements of the landscape and seascape as a result of the Proposed Development
- Designations and classifications, caused by changes to the special qualities of such landscapes as a result of the Proposed Development and whether effects would affect the integrity of designations
- Visual amenity, caused by changes in the composition and scenic qualities of views on visual amenity as a result of the Proposed Development.

4.3.40 Detailed information on the assessment methodology, including criteria for assessing sensitivity of receptors, magnitude of change and cumulative effects, as well as overall significance criteria, is provided in **Technical Appendix 4.1: Seascape, Landscape and Visual Methodology (EIAR Volume 4)**.

4.3.41 Mitigation of landscape, seascape and visual effects has been undertaken through design modifications, which have inputted into the design layout process. The design evolution is set out in **Chapter 3: Design Evolution and Alternatives (EIAR Volume 2)**. As all mitigation is embedded within the final design for the Proposed Development, all effects identified are residual effects.

4.3.42 Twenty-six representative viewpoints were chosen in consultation with SIC and NatureScot. These viewpoints are considered to be representative of the main sensitive receptors in the study area. The viewpoints have also been checked against the cumulative ZTVs for existing/consented and proposed wind farms within the Study Area to ensure that they provide representative coverage of potential cumulative visibility and related effects. Viewpoint locations are detailed in **Technical Appendix 4.4: Viewpoint Assessment (EIAR Volume 4)** and are included in **Figures 4.23a to 4.48f (EIAR Volume 3b)**.

Assessment of Potential Effect Significance

4.3.43 Initially an appraisal of potential impact generators and significant landscape and visual effects was undertaken for both the construction and operational phases of the Proposed Development in order to identify key priorities for both the assessment and for mitigation.

Requirements for Mitigation

4.3.44 Based on the initial baseline analysis and assessment of potential effects, embedded design and mitigation measures were generated for both the construction and operational phases of the Proposed Development. This was undertaken in an iterative fashion, as reported in **Chapter 3: Design Evolution and Alternatives (EIAR Volume 2)**.

Assessment of Residual Effect Significance

4.3.45 Following the finalisation of the Proposed Development layout an assessment of residual landscape, seascape and visual effects was undertaken for the construction and operational phases.

4.3.46 The assessment is intended to identify, predict, and evaluate potential significant effects from the Proposed Development. Wherever possible, identified effects are quantified, but the nature of landscape and visual assessment requires a degree of interpretation by professional judgement. To provide consistency to the assessment, receptor susceptibility and sensitivity, the magnitude of impact, and assessment of significance of the residual effects has been based on pre-defined criteria. The level of residual effects has been determined by a combination of the sensitivity of receptors and the magnitude of impact arising from the Proposed Development.

4.3.47 Analysis of the potential effects on the landscape and visual amenity arising from the Proposed Development at each of the 26 viewpoints has been undertaken. This analysis has involved the production of computer-generated wirelines and/or photomontages to predict the operational views of the Proposed Development from each of the agreed viewpoints. The existing and predicted views from each of these viewpoints have been analysed to identify the magnitude of change and the residual effects on landscape character and visual amenity at each viewpoint location.

4.3.48 'Major' and 'Major/Moderate' effects are considered to be significant within the context of the EIA Regulations. Where 'Moderate' effects are predicted, professional judgement is used to assess whether the effect is Significant or Not Significant thereby ensuring that the potential for significant effects is robustly considered. Justification is provided for the judgement reached.

Cumulative Assessment

4.3.49 The operational baseline and the potential future cumulative baseline including consented, in-planning and in-scoping wind farm developments are listed in **Table 4.3**. The cumulative assessment considers the Proposed Development ('Solus') within the baseline that may include existing operational wind farms (Scenario 1) and two future cumulative scenarios as follows:

- Scenario 2: The Proposed Development in conjunction with existing and consented (wind farms)
- Scenario 3: The Proposed Development in conjunction with existing, consented, and proposed (wind farms)

4.3.50 This approach is intended to reflect the differing degrees of certainty in each future Scenario. Scenario 2 has the highest degree of certainty and forms the most likely development context in which the Proposed Development would be seen. In contrast, there is a higher degree of uncertainty regarding the final design or likely consenting success of in-planning schemes (in Scenario 3). Sites at scoping are not considered in this SLVIA as the only scoping site, Girlsta, is over 23 km from the Proposed Development and to the south of Viking Wind Farm with which it would be associated.

4.3.51 The focus of potential cumulative landscape, seascape and visual effects is on the 'in-addition' effects attributable specifically to the incremental effects arising from the addition of the Proposed Development. Where relevant 'in-combination' effects, where the combined effect of the Proposed Development and all other cumulative schemes are taken into account, is considered.

Limitations and Assumptions

4.3.52 The construction period for the Proposed Development is estimated to be approximately 24 months.

4.3.53 The main impacts of the Proposed Development on landscape, seascape and visual resources would be during the operational stage when construction has been completed, and the wind farm is operational. An operational lifetime of 40 years is assumed although the Applicant does not seek a time-limited consent. The SLVIA has therefore focused upon any significant residual effects arising during the operational stage.

4.3.54 Field survey work was undertaken from publicly accessible locations. The nearest and most representative publicly accessible locations have been used, and further information has been garnered using other sources such as aerial photography.

4.3.55 The data used in completion of the SLVIA has a number of inherent limitations related to data tolerances and levels of accuracy. The most notable of these is the terrain data used to generate wirelines, which has the effect of 'smoothing out' contours so that small, localised landforms such as man-made banks and embankments, do not show on ZTVs or wirelines. This results in a slight over-emphasis of the theoretical visibility. Where relevant, professional judgement has been used to offset this in assessing impacts.

4.3.56 Photographs and other graphic material such as wirelines and photomontages used in the assessment are for illustrative purposes only and, whilst useful tools in the assessment, are not considered to be completely representative of what would be apparent to the human eye. For example, the 53.5 degree visualisations (for which photomontages are provided) allow focus but lack the wider context. The assessment itself is carried out from observations in the field and therefore may include and consider contextual elements that are not readily visible in the photographs.

4.3.57 The limitations noted above are compensated by professional experience and knowledge of the study area gained through field work to ensure that the assessment is robust.

4.3.58 In total, 26 assessment viewpoints have been selected to represent the range of landscape and visual receptors at varying distances and directions from the Proposed Development from publicly available land. Other views would be available, and the viewpoints are not intended to show all possible views. The SLVIA therefore also considers:

- The extent and pattern of visibility throughout the study area (considering those areas from where the Proposed Development would not be seen, as well as those areas from where it may)
- Views of the Proposed Development from areas of potential visibility other than the selected viewpoints
- Sequential views

4.3.59 The ZTV analysis presents a 'worst-case visibility scenario' as it is based on a bare terrain model and does not reflect the screening or filtering effect of built forms or structural vegetation.

4.3.60 Where distances to the Proposed Development are noted, these approximate distances are measured from:

- The visual receptor to the closest proposed turbine location
- Where measurements relate to Landscape Character Types (LCTs), Coastal Character Areas (CCAs), designations and classifications, the measurements given are to the nearest boundary of the LCT/CCA or designated/classified area rather than the nearest area with potential views of the Proposed Development. This is important because effects experienced within such areas may occur at a considerably greater distance, with corresponding consequences for the level of residual effects.

4.3.61 The assessment of effects including the visual amenity of residential receptors in settlements was undertaken from the nearest publicly accessible location unless otherwise stated. Individual residential properties within 2 km of the proposed turbines are assessed separately in the residential visual amenity assessment (RVAA) (See **Technical Appendix 4.7 Residential Visual Amenity Assessment (EIAR Volume 4)**).

4.4 Baseline Conditions

Current Baseline – Landscape and Coastal Character

Introduction

4.4.1 This section identifies landscape and coastal character receptors in the Study Area likely to be affected by the Proposed Development.

4.4.2 This section should be read in conjunction with **Technical Appendix 4.2: Landscape Character Types Sensitivity Assessment (EIAR Volume 4)** which describes the key characteristics of LCTs considered in the detailed assessment of effects and describes an evaluation of the sensitivity of LCTs to the Proposed Development. **Figure 4.7a: Landscape Character Types (EIAR Volume 3a)** shows LCTs within the SLVIA study area and **Figure 4.7b: Landscape Character Types and Tip ZTV (EIAR Volume 3a)** shows LCTs with tip height ZTV.

4.4.3 It is also supported by **Technical Appendix 4.3: Coastal Character Area Sensitivity (EIAR Volume 4)** which describes the key characteristics of CCAs considered in the detailed assessment of effects and describes an evaluation of the sensitivity of CCAs to the Proposed Development. **Figure 4.8a: Coastal Character Types (EIAR Volume 3a)** shows CCAs within the SLVIA study area and **Figure 4.8b: Coastal Character Areas with Tip ZTV (EIAR Volume 3a)** shows CCAs with tip height ZTV.

4.4.4 This section references viewpoints used in the SLVIA where these show aspects of landscape and costal character pertinent to an understanding of the baseline. Viewpoint locations are shown on **Figures 4.7a - 4.8b (EIAR Volume 3a)** and baseline photography is shown on **Figures 4.23a-f to 4.48a-f (EIAR Volume 3b)**.

Overview

4.4.5 The Site is located in the northern part of Shetland Mainland on a broad peninsula that extends into the southern part of Yell Sound. The lowest elevation at the Site is in the north at approximately 1 m Above Ordnance Datum (AOD) and the highest part is 110m AOD at Hill of Crooksetter in the central part of the Site. Topography at the Site is steepest at Hill of Crooksetter and slopes down more gradually to the north.

4.4.6 To the north of the Site there is open sea and to the east a small area of open hill land before the sea is reached. To the west topography gradually slopes down to Sullom Voe and to the south the land slopes gradually down to the valley of North Burn before rising to an area of undulating small hills that extend southward to Olna Firth. In the wider area to the west in the North Mavine and North Roe areas topography is generally of small, rounded hills and undulating moorland with the exception of Ronas Hill (450 m AOD) which is a notable landmark. To the north east, Yell is a large island of undulating low hills and moorland with a long western coastline that encloses Yell Sound on one side.

4.4.7 Land cover at the Site is mainly heather moorland. To the west SVT and Shetland Gas Plant is a large industrial area that occupies a large area of the peninsula with piers extending out into Sullom Voe. Industrial land use occurs at Sella Ness and Scatsta airfield to the south of SVT. To the east of the Site there is the scattered settlement of Brough and further south east the more concentrated settlement of Mossbank on the north side of Firths Voe. South of the Site there is scattered settlement at Graven and the B9076 to the east and south west. Apart from Mossbank (2.85 km east southeast), Brae (8.1 km to the south west) is the other main settlement within 10 km of the Site. In the wider area settlement is sparse although regular in the valleys and coastal fringes where most of the agricultural land is found. The main

transport routes tend to follow coastal fringes or inland valleys, occasionally crossing higher moorland.

4.4.8 The presence of the sea has a strong influence on landscape character, and there is a contrast between the narrow steep sided voes to the south and west of the Site and the open water of Yell Sound to the north and east. As mentioned above coastal areas are generally more settled and modified through agriculture and transport infrastructure than the interior hills and moorlands. Industrial development at Sullom Voe strongly influences coastal character to the west and south west of the Site.

Landscape Character Types

4.4.9 LCTs are shown on **Figures 4.7a: Landscape Character Types** and **4.7b: Landscape Character Types and Tip ZTV (EIAR Volume 3a)** and described in detail in **Technical Appendix 4.2: Landscape Character Types Sensitivity Assessment (EIAR Volume 4)** along with an evaluation of sensitivity. These LCTs are mapped and described by NatureScot (2019). Eight LCTs are mapped within 30 km of the Site. Each LCT comprises of several separate geographical areas or LCT Units. The Landscape Sensitivity and Capacity Study for Wind Farm Development on the Shetland Islands (2009) uses the NatureScot LCT as a basis for evaluating the ability of the landscape of Shetland to accommodate wind farm development. This 2009 Study refers to LCT Units as Subtypes and these are also described in **Technical Appendix 4.2: Landscape Character Types Sensitivity Assessment (EIAR Volume 4)** of this SLVIA.

4.4.10 The focus of the SLVIA is on the following LCTs and LCT Subtypes within 20 km of the Site:

- LCT 350 Peatland and Moorland (host LCT)
  - LCT Subtype B1 – Yell Peatland
  - LCT Subtype B2 – Rounded Moorland Hills
- LCT 354 Farmed and Settled Voes and Sounds
  - LCT Subtype F1 – Developed Areas
  - LCT Subtype F2 – Nucleated Settlements
  - LCT Subtype F5 – Scattered Settlements/Crofting and Grazing Land
- LCT 356 Small Uninhabited Islands
- LCT 349 Major Uplands
  - LCT Subtype A2 – East and West Kames
  - LCT Subtype A3 – Ronas Hill
- LCT 351 Undulating Moorland and Lochs
  - LCT Subtype C1 - West Mainland and Northmavine, Muckle Roe and Mangaster/Nibon Area
  - LCT Subtype C2 – Uyea, Braewick, Tingon and North Roe
  - LCT Subtype C3 – Lunna Ness and Dragon Ness
- LCT 355 Coastal Edge
- LCT 353 Farmed and Settled Lowlands and Coast
  - LCT Subtype E3 – Coastal Crofting and Grazing Lands

Coastal Character Areas

4.4.11 CCAs are mapped and described by the University of the Highlands and Islands Shetland (2021). These are shown on **Figures 4.8a: Coastal Character Areas** and **4.8b: Coastal Character Areas with Tip ZTV (EIAR Volume 3a)** and described in detail in **Technical**

Appendix 4.3: Coastal Character Areas Sensitivity (EIAR Volume 4) along with an evaluation of sensitivity. Of the 36 CCAs coinciding with the 45 km SLVIA wider study area, three of these are assessed in detail. SIC advised (see **Technical Appendix 1.1: Consultation Register (EIAR Volume 4)**) that the SLVIA should focus on the three CCAs listed below and in **Technical Appendix 4.3: Coastal Character Areas Sensitivity (EIAR Volume 4)**. In addition, **Table 4.3.1** in **Technical Appendix 4.3: Coastal Character Areas Sensitivity (EIAR Volume 4)** provides a reason for scoping each of the 33 other CCAs out of further assessment.

4.4.12 CCAs included in the detailed assessment:

- CCA 27 Yell Sound (host CCA)
- CCA 26 Sullom Voe
- CCA 3 Lunna Ness

Current Baseline – Visual

4.4.13 This section describes categories of visual receptors in the SLVIA Study Area. Visual receptors are people that may experience views of the Proposed Development and consequently the quality of visual amenity they currently experience may be affected. This section is supported by **Figure 4.9 Visual Receptors (EIAR Volume 3a)** and by the baseline photography from representative viewpoints in the Study Area shown on **Figures 4.23a-f to 4.48a-f (EIAR Volume 3b)**.

Settlements and Settled Areas

4.4.14 Settlements and settled areas within the Study Area are typically located along the coastline in the form of long dispersed bands of hamlets, villages and isolated dwellings, farmsteads and crofting properties connected by local roads or main highways. There is often a clustering of dwellings within sheltered bays, extending inland along the adjoining valley bottom, becoming less dense further inland. The ZTV in **Figure 4.3: Zone of Theoretical Visibility (45km) Tip Height (EIAR Volume 3a)** combined with baseline and assessment survey work has been used to identify which settlements would have theoretical visibility of the Proposed Development.

4.4.15 The settlement pattern in the Study Area varies from well-defined nucleated settlements to communities in which dwellings are scattered across a wide area. Settlements and communities are considered based on distance and orientation to the Site, and area occupied by the settlement, and where the community of settlement has a similar outlook or geographical context relative to the Site. Consequently this approach groups settlements or communities into overall receptors likely to experience a similar degree of change from the Proposed Development.

MOSSBANK

4.4.16 Mossbank is located 2.85 km east south east of the Proposed Development. The village is situated mainly on the north side of Firths Voe extending around the Burra Ness headland. Viewpoint 21 (**Figure 4.43a-f: Viewpoint 21: Mossbank (EIAR Volume 3b)** and **Technical Appendix 4.4: Viewpoint Assessment (EIAR Volume 4)**) describes the view from the northern part of Mossbank.

4.4.17 Properties are typically orientated towards the north east or south, overlooking the coast with open and elevated views from properties further setback from the coastline. These views are long distance, with the Isle of Yell also visible in the background. Views inland from the settlement area, towards the west, are often constrained by localised rising topography.

4.4.18 The Toft – Ulsta Ferry Terminal, and its associated activities, is visible from the northern part of Mossbank.

SCATSTA, GRAVEN AND GARTH AREA

4.4.19 Scatsta, Graven and Garth are to the south and south west of the Proposed Development. Settlement comprises of a loose band of small hamlets and villages along the south eastern coastline of Sullom Voe, with dwellings further inland into low-lying areas and shallow valley bottoms that extend east from Sullom Voe and include single dwellings along the minor road that runs to the east of Graven. Distances to the Proposed Development range from 2.3 km to 5.5 km. Viewpoints 9, 10 and 11 (see **Figure 4.31a-f to 4.33a-f (EIAR Volume 3b)** and **Technical Appendix 4.4: Viewpoint Assessment (EIAR Volume 4)**) are situated in this area.

4.4.20 Dwellings become more concentrated around the coastal plains and the small voes and bays, including Voxter Voe and Garths Voe. Between these villages, isolated properties follow the B9076 and minor roads.

4.4.21 Properties within the bays and adjacent plains are oriented radially, with aspects facing towards the bays and valley bottoms and ranging from north west to south west. Outlooks vary with longer views out across Sullom Voe and more localised views backdropped by local landform.

4.4.22 In the valleys, including Moorfield, Laxobiggin and sections of Graven, views are orientated out along the valley or towards adjacent uplands. Low-lying parts of the community, like Graven, have more contained views within the valley, whilst other properties such as Moorfield are more elevated, with northern aspects and long-distance views overlooking the valley.

4.4.23 Isolated Properties along the B9076 typically face westerly out towards Sullom Voe.

4.4.24 Views at Scatsta and Graven are strongly influenced by surrounding industrial activities including Scatsta airfield, Sella Ness industrial area and SVT and associated piers.

BRAE AND BUSTA

4.4.25 This settlement group includes the villages of Brae and Busta. Brae is a linear settlement situated at the isthmus between Busta Voe and Sullom Voe. The village extends along the east side and head of Busta Voe. The main outlooks from the village are west and south. Views within Brae have an urban character due to streetlights, buildings and services. Viewpoint 16 (see **Figure 4.38a-f: Viewpoint 16: Busta Road, Ladies Mire (EIAR Volume 3b)** and **Technical Appendix 4.4: Viewpoint Assessment (EIAR Volume 4)**) describes the view from the elevated western part of Brae on the minor road that leads to Busta and Muckle Roe.

4.4.26 Busta comprises of two small groups of dwellings and farmsteads. The northern group is on the north side of the minor road that leads to Muckle Roe and has outlooks mainly to the south and east. The southern group is on the south side of the minor road and includes Busta House Hotel. The main outlook for this group is to the east north east. There is a rural character to visual amenity at Busta and an absence of streetlighting.

HAGGRISTER TO SULLOM

4.4.27 This group comprises of dispersed settlement along the western coastline of Sullom Voe between Haggrister and Sullom. Distances to the Proposed Development range from 6.5 km to 10.4 km. Viewpoint 14 (see **Figure 4.36a-f: Viewpoint 14: Minor Road south of Sullom (EIAR Volume 3b)** and **Technical Appendix 4.4: Viewpoint Assessment (EIAR Volume 4)**) is situated on the minor road to the south of Sullom.

4.4.28 These dwellings tend to cluster around small bays and the valleys leading into them. Between these clusters, properties are more dispersed, typically following local roads. Within the bays and connecting valleys, properties are oriented radially, with aspects facing towards the bays and valley bottoms and ranging from north east to south east. There are varied outlooks from properties with main views extending across and along Sullom Voe with a backdrop of moorland and low hills.

OLLABERRY AND NORTH GLUSS

4.4.29 This group comprises of the small settlements of Ollaberry and North Gluss and surrounding scattered dwellings and farmsteads. The two settlements and environs are situated at the head of Bay of Ollaberry and Gluss Voe. North Gluss is situated at an elevated location with views all around with main outlooks to the east and south. The outlook from Bardister area is mainly to the north. Parts of Ollaberry are elevated with the main outlook to the east. Viewpoints 3 and 22 (see **Figures 4.25a-f: Viewpoint 3: Ollaberry. St Magnus' Church** and **4.44a-f: Viewpoint 22: Ollaberry (EIAR Volume 3b)** and **Technical Appendix 4.4: Viewpoint Assessment (EIAR Volume 4)**) are located at Ollaberry and viewpoint 13 (see **Figure 4.35a-f: Viewpoint 13: North Gluss (EIAR Volume 3b)** and **Technical Appendix 4.4: Viewpoint Assessment (EIAR Volume 4)**) is located at North Gluss.

4.4.30 Views from North Gluss are influenced to a degree by SVT and the Shetland Gas Plant. From lower lying areas of Ollaberry, SVT is not visible although a flare stack is discernible above intervening landform.

NORTH ROE

4.4.31 This group includes the small settlements of North and South Collafirth, Housetter and North Roe which collectively form an area of scattered groups and individual dwellings mainly along the route of the A970. Viewpoint 1 (see **Figure 4.23a-f: Viewpoint 1: Minor Track North Roe (EIAR Volume 3b)** and **Technical Appendix 4.4: Viewpoint Assessment (EIAR Volume 4)**) is located at the village of North Roe.

4.4.32 The main outlook from North and South Collafirth is to the east out to sea with views in the direction of the Site interrupted by intervening landform at Ness of Queyfirth. Dwellings at Housetter are situated on either side of a small valley with outlooks across the valley and south east towards the Site. Scattered settlement along the A970 between Housetter and North Roe has dwellings orientated in different directions with those at North Roe village having main views to the south east along Burra Voe and out into the open sea of Yell Sound.

LUNNA PENINSULA

4.4.33 This settled area is located to the south east of the Proposed Development along the north eastern peninsula of Lunna. Properties and settled areas are present along the minor road and include Muddyloch, Mooradale, Newhouse, Hamnavoe, Heog and ending at Outrabister. Distances to the Proposed Development range from 9.0 km to 9.8 km. Viewpoints 5 and 17 (see **Figures 4.27a-f: Viewpoint 5: Parking at Outrabister, Lunna Ness and 4.39a-f: Viewpoint 17: Minor road - Newhouse, Lunna Ness (EIAR Volume 3b)** and **Technical Appendix 4.4: Viewpoint Assessment (EIAR Volume 4)**) are located in the northeastern part of the Peninsula.

4.4.34 Properties are typically orientated out towards the coast to the north west and north. Views are elevated and panoramic with small isles in the midground looking beyond to headlands at Northness and Burra Ness. There are views across to Yell and from elevated areas Ronas Hill and North Roe areas are visible.

4.4.35 Properties at Lunna are orientated radially, south west to north west, around Lunna Voe. Views are typically more intimate and backdropped by localised rising topography surrounding the Bay.

VIDLIN

4.4.36 Vidlin is located 12.5 km to the south east of the Proposed Development around the head and along the eastern coastline of Vidlin Voe. The eastern part the village closely follows the eastern coastline and a local road, in a linear formation of scattered, and relatively isolated coastal cottages and crofting properties. Distances to the Proposed Development range from 12.0 km to 13.4 km. Viewpoint 23 (see **Figure 4.45a-f: Viewpoint 23: Vidlin (EIAR Volume 3b** and **Technical Appendix 4.4: Viewpoint Assessment (EIAR Volume 4)**) is located in the elevated eastern part of the village.

4.4.37 Properties are typically orientated north west, with elevated, open views overlooking Vidlin Voe and backdropped by the Lunna Peninsula. Higher, rolling hills on the Mainland can be seen breaking the skyline behind the peninsula.

4.4.38 The settlement is relatively enclosed within the Voe, with properties along the southern section of the community having views of the western side of Vidlin village and its associated activities including the marina, and the Vidlin ferry terminal.

WHALSAY

4.4.39 Settlement is mainly in the south west of the island at Symbister with continuous scattered settlement along the minor road which closely hugs the western coastline of the island. Settlements include Hamister, Marrister, Tripwell, Brough, Challister, Vats-Houll, up to Skaw located to the north east peninsula.

4.4.40 The larger villages including Symbister, Hamister, Clate, and Brough are relatively denser populated areas influenced by built form and limited development in the harbour area. Distances to the Proposed Development range from 17.2 km to 19.9 km. Viewpoint 24 (see **Figure 4.46a-f: Viewpoint 24: Whalsay (EIAR Volume 3b)** and **Technical Appendix 4.4: Viewpoint Assessment (EIAR Volume 4)**) is located in the northeastern part of the island.

4.4.41 Properties are typically orientated out north west towards the coast and open sea. Views are open, and panoramic, overlooking small uninhabited islands such as West Linga with the backdrop of Lunning Head and Lunna Ness and distant views of hills beyond.

4.4.42 The far north western section of the community, including Skaw, Vats-Houll and Challister, is relatively less developed, and properties have even longer distant views out towards the open water of Yell Sound with Mainland and Yell as a backdrop to seascape views.

4.4.43 At Symbister, outlooks vary following the curvature of the smaller, localised bays with open views out to sea and enclosed views across the bay, backdropped by nearby landform.

4.4.44 Clate, in the southern end of the island, has outlooks facing mainly southwest, with elevated views across the channel towards the Stava Ness and Neap Peninsula on the Mainland.

ULSTA AND WEST YELL

4.4.45 This settlement group is located to the north east of the Proposed Development, on the Isle of Yell, comprising of coastal villages and hamlets along the southern and western coastline between Ulsta and West Sandwick. Distances to the Proposed Development vary between 4.9 km and 11 km. Viewpoints 4 and 18 are provided (see **Figures 4.26a-f: Viewpoint 4: Yell. Ulsta Shetland Ferry Terminal** and **4.40a-f: Viewpoint 18: Yell. A968/NCR1 (EIAR**

Volume 3b) and **Technical Appendix 4.4 (EIAR Volume 4)**) describes the view from the south of the car park at Ulsta ferry terminal and from the A968 on the west side of Yell respectively.

4.4.46 Settlement occurs along the main roads of B9081 and A986. Outlooks are typically south west or west, with open views overlooking Yell Sound and elevated views experienced in areas set back from the coast. Views are long distance, with smaller, low-lying isles visible within the sound, and backdropped by the Mainland.

BURRAVOE, YELL

4.4.47 This settlement group is situated in the southernmost part of Yell and includes the area between Hamna Voe and Heoga Ness and the settled area around Burravoe. Viewpoint 19 (see **Figure 4.41a-f: Viewpoint 19: Yell. B9081, west of Loch of Littlester (EIAR Volume 3b)** and **Technical Appendix 4.4: Viewpoint Assessment (EIAR Volume 4)**) is located on the B9081 to the west of Burravoe.

4.4.48 Outlooks are to the west, south and east. Views west in the direction of the Site have a more open character partly interrupted by Ness of Copister.

SETTLEMENTS AND SETTLED AREAS EXCLUDED FROM FURTHER ASSESSMENT

- Muckle Roe – limited visibility of blade tips only from the east side of Muckle Roe
- Hillswick to Eshaness – limited visibility mainly of blade tips
- Voe, Laxo and North Nesting – no visibility from inhabited areas
- Fetlar – very limited visibility from inhabited areas in the east of the island
- North and East Yell – no visibility from inhabited areas
- Unst – very limited and distant visibility mainly from uninhabited areas
- Papa Stour and Sandness – limited visibility and long intervening distance

Road Network

4.4.49 The road network within the Study Area is generally confined along the relatively low-lying coastlines, valley bottoms, and loch edges, providing connections between the scattered hamlets, villages, and isolated properties in these regions. Where the terrain allows, some routes cross the uplands, bisecting the island and linking opposite coastlines.

4.4.50 It is anticipated that significant effects on transport routes at distances of greater than 20 km are unlikely. Therefore only those routes within 20 km and within the ZTV are assessed.

A968

4.4.51 The northernmost A-road runs from the Olna Firth on Mainland, north through Yell and Unst mainly following the coastline and passes within 1 km of the Site at its closest point. The southern section of the route runs along a valley bottom, with relatively enclosed views. As the route reaches the coast from the south, the long distance coastal views become available but are orientated towards the east, away from the Site.

4.4.52 On Yell the A968 closely follows the western coastline and is the main transport corridor on the island. Elevated, open and long distance views towards the west and south west are available, with views of small islands in Yell Sound backdropped by the Mainland hills.

4.4.53 Viewpoints 8 (**Figure 4.30a-f: Viewpoint 8: Ferry Port - Toft - Revised Location (EIAR Volume 3b)**), 18 (**Figure 4.40a-f: Viewpoint 18: Yell. A968/NCR1 (EIAR Volume 3b)**) and 20 (**Figure 4.42a-f: Viewpoint 20: A986/NCR1, South of Firths Voe (EIAR Volume 3b)**) are located on the A968.

A970

4.4.54 The section of the A970 within the ZTV extends from the settlement of Brae, north to the village of North Roe passing within 8 km of the Site at its closest point. This route follows a valley from which there are enclosed and channelled views. There are intermittent long distance coastal views to the west and east, visible through gaps in the intervening topography and in areas that border small bays and voes. Long-distance views to the east include SVT with the Site also discernible. Viewpoints 15 (**Figure 4.37a-f: Viewpoint 15: A970 Layby, Burraland (EIAR Volume 3b)**) and 16 (**Figure 4.38a-f: Viewpoint 16: Busta Road, Ladies Mire (EIAR Volume 3b)**) are located on the A970.

B9076

4.4.55 This route runs south west to north east connecting the A970 at Brae and the A968 to the west of Mossbank passing within 0.5 km of the Site at its closest point. The southern section of the route runs along the western coast of Sullom Voe, with coastal orientated views out to the north west, away from the Site. The northern section of the route heads east-west, through a valley a short distance from the Site. Views from the route are channelled and enclosed due to rising topography on either side of the valley. Viewpoint 9 (**Figure 4.31a-f: Viewpoint 9: Vantage Point by Houb of Scatsa (EIAR Volume 3b)**) is located on this route.

B9079

4.4.56 This route runs south west to north east connecting Ollaberry with the A970 at Eela Water passing within 5.5 km of the Site at its closest point. The route follows a valley with predominantly enclosed and channelled views. Along the western and eastern ends of the route there are views to the east overlooking Sullom Voe and backdropped by the Site.

B9081

4.4.57 This route runs along the south coast of Yell between Ulsta and Burravoe passing within 4.6 km of the Site at its closest point. From Burravoe the route heads north across elevated moorland areas to Mid Yell. Views are orientated to the south, overlooking small bays towards Lunna Peninsula. Viewpoint 19 (**Figure 4.41a-f: Viewpoint 19: Yell. B9081, west of Loch of Littlester (EIAR Volume 3b)**) is located on this route.

LOCAL ROADS

4.4.58 Various local roads branch off the A and B roads typically linking coastal hamlets and villages and individual properties dotted along the coastlines and valley bottoms.

Ferry Routes

TOFT – ULSTA

4.4.59 The route crosses Yell Sound, running north east to south west and is the main ferry route connecting the Mainland with Yell. The route is approximately 4.7 km in length and is the closest ferry route passing within 1.3 km of the Site. Viewpoint 26 (**Figure 4.48a-f: Viewpoint 26: Yell Ferry Route (EIAR Volume 3b)**) is located on this route.

VIDLIN – OUT SKERRIES

4.4.60 The route passes north along Vidlin Voe, then turns north eastward to Out Skerries. The route is approximately 23 km in length passing within 11.2 km to the south east of the Site.

VIDLIN – SYMBISTER

4.4.61 The route passes north along Vidlin Voe, then turns south eastward towards Whalsay then south to Symbister. The route is approximately 11.5 km in length passing within 11.2 km to the south east of the Site.

SYMBISTER – OUT SKERRIES

4.4.62 The route initially runs north between Whalsay and West Linga, before turning east then north east to Out Skerries. The route is approximately 20 km in length passing within 11.7 km to the south east of the Site.

Core Paths and Recreational Routes

4.4.63 Core paths within the Study Area are generally associated with the settlement groups described above in the section on settlements and communities. The assessment focusses on core paths within 10 km of the Proposed Development as it is more likely there would be significant effects on routes in that area. Core paths within 10-20 km are also considered in the assessment including those in designated landscapes and Ronas Hill and North Roe WLA. This section describes only core paths that coincide with areas of theoretical visibility that are shown on **Figures 4.3 to 4.6 (EIAR Volume 3a**).

MOSSBANK

4.4.64 The core path CPPDe03 is a 1.2 km long circular path that runs through the northern section of Mossbank Village, along the local road and out towards the coastline before looping back through residential area. The key views are towards the north east, overlooking the sea with views of small islands in Yell Sound such as Bigga and Samphrey and views of the south coast of Yell and Lunna Ness. Distance to the Site is 2.7 km.

BRAE AND BUSTA

4.4.65 Core path CPPN11 is a 1.2 km long path which starts off the A970, just west of Brae, at the southern end of Sullom Voe. The route is signposted from the A970, and there is picnic site at the start of the route which is situated at a narrow isthmus separating the Atlantic Ocean from the North Sea. The path follows the north side of a narrow channel, passing several chambered cairns. Views are orientated south and west to east across and along the narrow Voe and relatively enclosed by surrounding, rising topography. Distance to the Site is 9.5 km.

OLLABERRY AND NORTH GLUSS

4.4.66 Core path CPPN13 is the only core path in this settlement group with theoretical visibility. The 2.7 km loop begins from Ollaberry village running north along the eastern coastline past the headlands of Saberstone and Taing of Norwick before turning inland and back south along a low-lying shallow valley and eventually onto a local track back to Ollaberry village. The core path is coastal orientated, with key views out towards the south east, east and north east, across Yell Sound to intervening islands and the coast of Yell. SVT is visible. Distance to the Site is 5 km.

NORTH ROE

4.4.67 Core path CPPN08 provides access to Ronas Hill from the A970 via a track that leads to a mast on Collafirth Hill. There are open views all around and particularly to the east through to south across Yell Sound and in the direction of the Site. Viewpoint 2 (see **Figure 4.24a-f: Viewpoint 2: Mid Field Cairn (WLA) (EIAR Volume 3b)** and **Technical Appendix 4.4: Viewpoint Assessment (EIAR Volume 4)**) is situated at a higher altitude due west of the core path and provides an indication of baseline views from that area.

4.4.68 Core path CPPN04 is situated in the North Roe Area of Shetland NSA and crosses elevated moorland and circumnavigates the Fethaland peninsula. The focus is on coastal scenery and open views all around from elevated moorland.

4.4.69 Core path CPPN09 is in the North Roe Area of Shetland NSA and runs along north facing clifftops between Sand Voe in the east and Uyea island in the west. The ZTV shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height (EIAR Volume 3a)** indicates there would be visibility from a short section in the east.

4.4.70 The closest core path in this group is 11.5 km from the Site.

LUNNA PENINSULA

4.4.71 Core path CPPNL04 is the only core path on the Lunna Peninsula and within the ZTV. Approximately 11.6 km long, it forms a large loop along the eastern coastline before heading inland, ascending the Ward of Outrabister (90 m AOD) and down past Fugla Water and South Loch Stofast. Views, particularly along the eastern section of the route, are coastal focused and elevated, with views of sea all around the peninsula against the backdrop of Mainland and Yell. Distance to the Site is 8.5 km.

VIDLIN

4.4.72 Core path CPPNL01 is a circular route from the village of Vidlin that uses tracks and adopted roads. The route heads south from Vidlin along a minor road turning west at Burga Water before heading north along the B9071 and back to the village. The ZTV indicates visibility from the eastern leg of the route from a point south of Vidlin to Burga Water and at Skelberry. There are views towards the Site from elevated parts of the route with the main views being north along Vidlin Voe and south across Dury Voe and south east to Whalsay and open sea beyond. Distance to the Site is 10.6 km.

WHALSAY

4.4.73 Core path CPPW01 is approximately 2.9 km long and situated in the northeast of Whalsay. It is a circular route starting from Vats-Houll and running north along the coastal edge past Sefta Point and Mooa Clett before turning south inland past Challister Ness. Views overlook the coast, and are elevated, long distance and panoramic, with the Mainland and Yell visible in the background.

4.4.74 Core path CPPW03 is approximately 1.8 km long and situated to the south of the village of Brough. The route follows the shoreline of Loch of Houll. Views are towards the Loch, and enclosed and short distance, backdropped by rising topography around the loch.

4.4.75 Core path CPPW04 is approximately 3.7 km long and is situated to the southeast of Symbister in the south of the island. It has two key sections, one part running along the southern coast and the other ascending Ward of Clett (120 m AOD) which is the only part from which visibility of the Proposed Development would be obtained within the ZTV(see **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)**). Views from this section of core path are elevated, long distance and panoramic views.

4.4.76 The closest core path in this group is 17 km from the Site.

BURRAVOE, YELL

4.4.77 Core path CPPY02 is the only core path in the south of the island from which there would be views of the Proposed Development. The core path is approximately 2.8 km long and begins at Burravoe Village. It follows the shoreline of Loch of Littlestar before looping back to

Burravoe. Views are focused on the loch and enclosed by surrounding rising topography with open views towards the Site from the eastern part of the route. Distance to the Site is 8.7 km.

ESHANESS AND HILLSWICK (SHETLAND NSA)

4.4.78 Core path CPPN06 is situated in the eastern part of Eshaness Area of Shetland NSA. It is a 6.8 km circular route following the coastline of Hillswick peninsula. The path is coastal orientated, with key views out towards the east, over Ura Firth, and south and south west across St Magnus Bay. The ZTVs shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate that the Proposed Development would be visible mainly from the south eastern section of the path. Distance to the Site is 12.5 km.

4.4.79 Core path CPPN02 is situated in the western part of Eshaness. It is a 10.2 km long route that runs along the Eshaness peninsula. The ZTVs shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate visibility from very short sections of the route. Distance to the Site is 19 km.

NATIONAL CYCLE NETWORK

4.4.80 National cycle network route 1 passes through the SLVIA Study Area. It uses the following existing roads:

- The A970 between Voe and Brae
- The B9076 between Brae and Mossbank
- The A968 between Voe and Toft and between Ulsta and Mid Yell

Current Baseline - Landscape Designations and Classifications

4.4.81 This section summarises the national and local landscape designations and classifications that coincide with the SLVIA Study area.

Shetland National Scenic Area (NSA)

4.4.82 Shetland NSA comprises of seven separate Areas which are listed below with respective distance to the nearest proposed turbine. All seven areas are shown on **Figure 4.12: Shetland National Scenic Area and Hub Height ZTV (EIAR Volume 3a)**.

- North Roe NSA Area – 11 km to the north north west
- Eshaness NSA Area – 12 km to the west
- Muckle Roe NSA Area – 12.5 km to the south west
- Hermaness – 25 km to the north west
- South West Mainland – 27.5 km to the south
- Foula – 55 km to the south west
- Fair Isle – 103 km south south west

4.4.83 In consultation with NatureScot it was agreed that the SLVIA assess in detail North Roe, Eshaness, and Muckle Roe. **Figures 4.13a-c (EIAR Volume 3a)** show the three NSA Areas overlaid with a hub height ZTV. **Technical Appendix 4.6: Shetland National Scenic Area Special Landscape Qualities Assessment (EIAR Volume 4)** sets out the detailed assessment of effects in line with NatureScot guidance. As agreed with NatureScot the assessment focuses on four of the nine Shetland NSA SLQs:

- SLQ2 – Coastal views both close and distant

- SLQ3 – Coastal settlement and fertility within a large hinterland of unsettled moorland and coast
- SLQ4 – The hidden coasts
- SLQ6 – A sense of remoteness, solitude and tranquillity

4.4.84 **Technical Appendix 4.6: Shetland National Scenic Area Special Landscape Qualities Assessment (EIAR Volume 4)** evaluates the sensitivity of all nine SLQs and provides justification for excluding SLQs from detailed assessment.

Shetland Islands Council Local Landscape Areas

4.4.85 LLAs are described by theSIC in Shetland Local Development Plan Supplementary Guidance Consultation Draft (2014). There are 15 LLAs within the 45 km SLVIA Study Area (see **Figure 4.10: Landscape Designations (NSA, LLA) and Wild Land Areas with Tip Height Bare Ground ZTV (EIAR Volume 3a)**) of which four are assessed in detail. All LLAs are listed in **Table 4.5.1** of **Technical Appendix 4.5: Designations and Classifications Sensitivity Assessment (EIAR Volume 4)** along with the reason for excluding selected area from detailed assessment. **Technical Appendix 4.5: Designations and Classifications Sensitivity Assessment (EIAR Volume 4)** also describes key characteristics and sensitivity of the four LLAs assessed in detail.

4.4.86 The SIC LLAs assessed in detail are:

- LLA 1 Ronas Hill – 8.0 km north west
- LLA 2 Nibon and Mangaster – 8.0 km west
- LLA 12 Lunna Ness and Lunning – 7.9 km south east
- LLA 17 West Sandwick to Gloup Holm – 9.1 km north

NatureScot Wild Land Areas

4.4.87 There is one WLA in the Study Area: WLA 42 Ronas Hill and North Roe (see **Figure 4.10: Landscape Designations (NSA, LLA) and Wild Land Areas with Tip Height Bare Ground ZTV (EIAR Volume 3a)**) situated approximately 8.7 km to the northwest of the Site.

4.4.88 As the Proposed Development is outwith the WLA, a detailed assessment of the effects of the Proposed Development on WLA 42 has not been undertaken. The key attributes of WLA 42 as described by NatureScot are considered in the assessment of sensitivity of LCT and LLA that overlap with WLA 42, and these attributes are also considered in that context in the assessment of residual effects.

Cumulative Context

4.4.89 **Table 4.3** summarises the cumulative context at the time of the LVIA. The location of these cumulative developments is shown on **Figure 4.14: Cumulative Location Plan (EIAR Volume 3a)**.

Table 4.3: Cumulative Wind Farms

Development name	Distance (approx.) and direction from the Site	Number of turbines	Maximum height to blade tip
Operational developments			
Burradale Wind Farm	34.7 km, S	5	66 m

Table 4.3: Cumulative Wind Farms			
Development name	**Distance (approx.) and direction from the Site**	**Number of turbines**	**Maximum height to blade tip**
Garth Wind Farm	25.9 km, NNE	5	67 m
Luggies Knowe Phase 1	32 km, S	1	121 m
North Hoo Fields Wind Turbine	34.7 km, S	1	67 m
Viking Wind Farm	14.9 km, S	103	155 m
Consented developments			
Beaw Field Wind farm	10.3 km, NE	17	145 m
Energy Isles Wind Farm	23.4 km, NNE	18	180 m
Luggies Knowe Phase 2	32.3 km, S	1	149.9 m
Mossy Hill Wind Farm*	34 km, S	12	144.5 m
North Hoo Fields Wind Turbine Extension	34.7 km, S	1	99 m
Application stage developments			
Sullom Voe Terminal	2.3 km, WSW	2	149.9 m
Wethersta Wind Farm**	12 km, SSW	2	107 m

*Note that consented Mossy Hill Wind Farm is shown as the reduced layout of eight turbines on **Figure 4.14: Cumulative Location Plan** and **Figure 4.18 Cumulative ZTV – Neshion with Consented** Sites (EIAR Volume 3a) but is shown as the previously consented 12 turbine scheme on **(Figures 4.23a-f to 4.48a-f: Viewpoints 1 to 26 EIAR Volume 3b)**.

**Note that Wethersta Wind Farm is shown as at Scoping stage on the visualisations (Figures 4.23a-f to 4.48a-f: Viewpoints 1 to 26 EIAR Volume 3b) but is assessed as In Planning in the cumulative assessment.

Future Baseline

4.4.90 Without the Proposed Development, the landscape and visual baseline at the Site would be unlikely to experience substantial change. It is recognised that there may be other future developments that may occur within the Study Area that could have the potential to further alter the landscape and visual amenity baseline. In particular noting the Shetland Sullom Voe Development Framework which anticipates potential energy related developments in the north of Mainland Shetland. However, the potential impacts of any such future development cannot be predicted or assessed fully where details are not currently available. Where details of future developments are known these will be assessed as part of the cumulative baseline in the

cumulative effects assessment, otherwise the current baseline is considered a robust basis for this assessment.

Summary of Sensitive Receptors

4.4.91 A summary of the receptors considered likely to be affected by the Proposed Development and therefore scoped into the EIA Report are set out in **Table 4.4** together with their associated sensitivity. See also **Technical Appendices 4.2 to 4.7 (EIAR Volume 4)**.

Table 4.4: Summary of Sensitive Receptors

Receptor	Sensitivity	Justification
LCT 350 Peatland and Moorland	Medium/Low (host unit) Medium generally	See **Technical Appendix 4.2: Landscape Character Types Sensitivity Assessment (EIAR Volume 4)**
LCT 354 Farmed and Settled Voes and Sounds	Low to Medium	See **Technical Appendix 4.2: Landscape Character Types Sensitivity Assessment (EIAR Volume 4)**
LCT 356 Small Uninhabited Islands	High/Medium	See **Technical Appendix 4.2: Landscape Character Types Sensitivity Assessment (EIAR Volume 4)**
LCT 349 Major Uplands	High/Medium	See **Technical Appendix 4.2: Landscape Character Types Sensitivity Assessment (EIAR Volume 4)**
LCT 351 Undulating Moorland and Lochs	High/Medium	See **Technical Appendix 4.2: Landscape Character Types Sensitivity Assessment (EIAR Volume 4)**
LCT 355 Coastal Edge	High/Medium	See **Technical Appendix 4.2: Landscape Character Types Sensitivity Assessment (EIAR Volume 4)**
LCT 353 Farmed and Settled Lowlands and Coast	High/Medium	See **Technical Appendix 4.2: Landscape Character Types Sensitivity Assessment (EIAR Volume 4)**
CCA 27 Yell Sound	High/Medium	See **Technical Appendix 4.3: Coastal Character Areas Sensitivity (EIAR Volume 4)**
CCA 26 Sullom Voe	Medium/Low to Medium	See **Technical Appendix 4.3: Coastal Character Areas Sensitivity (EIAR Volume 4)**
CCA 3 Lunna Ness	High/Medium	See **Technical Appendix 4.3: Coastal Character Areas Sensitivity (EIAR Volume 4)**
Settlements: ▪ Mossbank ▪ Scatsta, Graven and Garth ▪ Brae and Busta ▪ Haggrister to Sullom ▪ Ollaberry and North Gluss ▪ North Roe ▪ Lunna Peninsula ▪ Vidlin	High	See **Technical Appendix 4.1: Seascape, Landscape and Visual Methodology (EIAR Volume 4)**

Table 4.4: Summary of Sensitive Receptors		
Receptor	**Sensitivity**	**Justification**
▪ Whalsay ▪ Ulsta and West Yell ▪ Burravoe, Yell		
Roads: ▪ A968 ▪ A970 ▪ B9076 ▪ B9079 ▪ B9081 ▪ Local roads	Medium	See **Technical Appendix 4.1: Seascape, Landscape and Visual Methodology (EIAR Volume 4)**
Ferry Routes: ▪ Toft – Ulsta ▪ Vidlin – Out Skerries ▪ Vidlin – Symbister ▪ Symbister – Out Skerries	High/Medium	See **Technical Appendix 4.1: Seascape, Landscape and Visual Methodology (EIAR Volume 4)**
Core Paths in the following areas: ▪ Mossbank ▪ Brae and Busta ▪ Ollaberry and North Gluss ▪ North Roe ▪ Lunna Peninsula ▪ Vidlin ▪ Whalsay ▪ Burravoe, Yell ▪ Eshaness and Hillswick (Shetland NSA)	High	See **Technical Appendix 4.1: Seascape, Landscape and Visual Methodology (EIAR Volume 4)**
National Cycle Network	High	See **Technical Appendix 4.1: Seascape, Landscape and Visual Methodology (EIAR Volume 4)**
Shetland NSA Areas: North Roe; Eshaness; and Muckle Roe.	High overall	See **Technical Appendix 4.6: Shetland National Scenic Area Special Landscape Qualities Assessment (EIAR Volume 4)**
Shetland NSA SLQ2 – Coastal views both close and distant.	High	See **Technical Appendix 4.6: Shetland National Scenic Area Special Landscape Qualities Assessment (EIAR Volume 4)**
Shetland NSA SLQ3 – Coastal settlement and fertility within a large hinterland of unsettled moorland and coast.	High/Medium	See **Technical Appendix 4.6: Shetland National Scenic Area Special Landscape Qualities Assessment (EIAR Volume 4)**
Shetland NSA SLQ4 – The hidden coasts.	Medium	See **Technical Appendix 4.6: Shetland National Scenic Area Special Landscape Qualities Assessment (EIAR Volume 4)**
Shetland NSA SLQ6 – A sense of remoteness, solitude and tranquillity.	High	See **Technical Appendix 4.6: Shetland National Scenic Area Special Landscape Qualities Assessment (EIAR Volume 4)**

Table 4.4: Summary of Sensitive Receptors		
Receptor	**Sensitivity**	**Justification**
SIC LLA 1 Ronas Hill	High/Medium	See **Technical Appendix 4.5: Designations and Classifications Sensitivity Assessment (EIAR Volume 4)**
SIC LLA 2 Nibon and Mangaster	High/Medium	See **Technical Appendix 4.5: Designations and Classifications Sensitivity Assessment (EIAR Volume 4)**
SIC LLA 12 Lunna Ness and Lunning	High/Medium	See **Technical Appendix 4.5: Designations and Classifications Sensitivity Assessment (EIAR Volume 4)**
SIC LLA 17 West Sandwick to Gloup Holm	High/Medium	See **Technical Appendix 4.5: Designations and Classifications Sensitivity Assessment (EIAR Volume 4)**
Viewpoints 1 – 26	See **Technical Appendix 4.4: Viewpoint Assessment (EIAR Volume 4)**	See **Technical Appendix 4.4: Viewpoint Assessment (EIAR Volume 4)**

4.5 Mitigation

4.5.1 Embedded (primary) mitigation is an inherent part of the project design and comprises measures that have influenced the location and design of the Proposed Development. Embedded mitigation would be secured through the description of the Proposed Development as part of planning consent and is described in the design evolution narrative (refer to **Chapter 3: Design Evolution and Alternatives (EIAR Volume 2)**). Standard (tertiary) mitigation comprises measures that are mandated by legislative requirements or standard best practices and would be required regardless of the outcomes of any EIA.

4.5.2 As the embedded and standard mitigation would form part of the Proposed Development, there would be no consented scenario where the mitigation measures would not be implemented. As such, the assessment of likely significant effects assumes that these mitigation measures are implemented.

4.5.3 The embedded mitigation measures of relevance to seascape, landscape and visual include:

- Setting back proposed turbines from residential receptors to the east of the Site at Brough and Toft
- Setting back development from Graven and the valley to the south of the Site
- Mitigating the effect on the character of the coast and hinterland and on key visual receptors such as tourists (including vantage points and recreational routes), settlements, road users and ferry passengers by focussing development to the north of the Site
- Keeping the overall horizontal extent of the array to a minimum by arranging the proposed turbines in two rows
- Siting the Proposed Development close to SVT to minimise the perceived extent of development in the locality
- Avoiding large gaps in the proposed turbine array

4.6 Assessment of Likely Effects

Potential Construction Effects

4.6.1 The following elements and activities associated with the construction phase of the Proposed Development have the potential to result in effects on landscape and visual amenity of the Study Area:

- Construction of Site access tracks
- Construction of temporary Site construction compounds incorporating Site offices
- Removal or alteration of areas of moorland vegetation
- Construction of Site infrastructure, including new tracks between wind turbine locations and maintenance tracks
- Construction of laydown areas and areas of hardstanding
- Construction of substation and BESS compound, incorporating control building
- Excavation and construction of wind turbine foundations
- Erection of wind turbines
- Excavations of trenches for underground cables
- Excavations of a temporary mineral extraction site (borrow pit)
- Heavy goods vehicle (HGV) and abnormal indivisible load (AIL) deliveries to the Site and movement of vehicles onsite
- Reinstatement work, including restoration of borrow pits and removal of temporary accommodation works

Likely Effects on Landscape during Construction

4.6.2 The effect of construction on the landscape character would be localised to areas around the construction locations and would be of relatively short duration. This would include some increased traffic on local roads and crane handling. Much of the disturbance associated with construction would be ameliorated or removed during subsequent reinstatement activities.

4.6.3 A large proportion of the construction effects would be managed through adoption of good practice and careful construction, management and monitoring regimes (such as those presented in the Outline Construction Environmental Management Plan (CEMP), **Technical Appendix 2.1: Outline Construction Environmental Management Plan (OCEMP) (EIAR Volume 4)**. Given the localised, short duration and partially reversible nature of construction impacts of Medium magnitude of change, and the medium sensitivity of the moorland in the host LCT 350 Peatland and Moorland, effects on landscape fabric would be **Significant** and very localised.

4.6.4 Whilst there is potential for construction works to impact on landscape character of the Study Area, the relatively short duration, limited geographical extents of works and largely reversible nature of construction impacts means that effects on sensitive neighbouring LCTs, CCAs and LLAs are likely to be **Not Significant**.

Effects on Visual Amenity During Construction

4.6.5 Elements of construction that would impact on visual receptors across the Study Area would be the visibility of taller plant such as cranes that may be visible over a wider area. Other than cranes, visibility of construction would be limited to the local receptors with direct views of the Site. Effects would be highly localised, of short duration and essentially reversible. Effects would be **Not Significant**.

Potential Operational Effects

4.6.6 The operational life of the Proposed Development is expected to be 40 years. Consequently, for the purposes of this assessment the operational life and corresponding effects are considered to be long term. The operational elements (see **Figure 2.1: Site Layout (EIAR Volume 3a)**) with the potential to affect the landscape and visual amenity of the Study Area are:

- Wind turbine generators
- Wind turbine aviation warning lighting
- Internal access tracks and hardstanding areas
- Restored temporary mineral extraction area (borrow pit)
- Substation, BESS/control building

4.6.7 All the effects during operation of the Proposed Development would be residual effects. Consequently, residual effects are described in Section 4.8 of this chapter and in **Technical Appendices 4.4, 4.6-4.8 (EIAR Volume 4)**.

Potential Landscape Effects

4.6.8 The fabric of the landscape within the Proposed Development has the potential to be impacted by the tracks and hardstandings that would be retained during the operational phase. The reinstated borrow pit has the potential to affect the fabric of the landscape. Effects on landscape fabric would occur solely in LCT350 Peatland and Moorland.

4.6.9 The wider character of the landscape and designated and classified landscapes have potential to be impacted by views of the Proposed Development which has potential to increase the influence of wind farm development on LLAs within 10 km of the nearest proposed turbine, WLA42 Ronas Hill and North Roe and the locality surrounding the Site. However, it is also the case that the Proposed Development is likely to be seen in an existing developed context with consequent implications for the degree of contrast and the magnitude of impacts attributed to it.

Potential Visual Effects

4.6.10 The operational development including most of the associated development would be located adjacent to SVT. The Proposed Development would be situated on a low, broad ridge and although the proposed turbines would be large, they would be spaced widely apart creating a simple overall appearance.

4.6.11 The Proposed Development has the potential to affect visual receptors mainly within 20 km of the nearest proposed turbines as indicated on the ZTVs shown on **Figures 4.3-4.6 (EIAR Volume 3a)**. The embedded mitigation measures are described in **Chapter 3: Design Evolution and Alternatives (EIAR Volume 2)** and Section 5.6 above.

Potential Cumulative Construction Effects

4.6.12 Whilst there is potential for cumulative effects associated with the construction of the Proposed Development and other wind energy developments in the Study Area, there is no certainty as to the nature of construction operations or timescales for the cumulative developments identified in **Table 4.3**. Construction effects are also very localised and of temporary duration thereby limiting the potential for significant cumulative construction effects.

Potential Cumulative Operational Effects

4.6.13 Potential cumulative effects would arise as a result of the Proposed Development in conjunction with existing, consented and in-planning wind developments within the Study Area. Two types of effects have been considered in the assessment of cumulative effects: in-addition effects and in-combination effects. The focus is on in-addition effects i.e. effects arising from the Proposed Development in addition to cumulative developments in each cumulative scenario assessed. In-combination effects are those arising from the total amount of wind farm development in any given scenario assessed.

4.6.14 Of relevance to cumulative effects is the extent to which the Proposed Development would be consistent with the emergent pattern of development and the avoidance of geographical distribution of development with consequent spreading of cumulative effects, especially in respect of sensitive landscape and visual receptors.

4.7 Additional (Secondary) Mitigation

4.7.1 Additional (secondary) mitigation comprises site-specific mitigation which has been included to reduce the magnitude of impact/significance of effect identified through the EIA.

4.7.2 As mentioned in Section 4.5 embedded design mitigation is the mitigation measure applied to reduce effects on seascape, landscape and visual resources. The main impacts would arise from the introduction of the wind turbines with ancillary development also contributing to these impacts but in a more localised area. Standard mitigation would reduce the impacts of ground level construction activities, and those measures are detailed in the Outline Construction Environmental Management Plan described in **Technical Appendix 2.1: Outline Construction Environmental Management Plan (OCEMP) (EIAR Volume 4)**.

4.7.3 No secondary mitigation is proposed as the main mitigation measures for seascape, landscape and visual are implemented through embedded design and standard methods.

4.8 Assessment of Residual Effects

4.8.1 The assessment of residual effects identifies and describes the changes to the landscape, seascape and visual baseline, which includes operational wind farms, after embedded and additional mitigation. Residual construction effects are assessed as temporary and adverse unless stated otherwise. Residual operational effects are assessed as adverse and long term unless stated otherwise.

Residual Construction Effects

Effects on Landscape Fabric

4.8.2 The key changes to the fabric of the landscape within the Site due to the construction of the Proposed Development would relate to minor and localised changes to landform, and landcover through the construction of internal roads, turbine foundations, installation of underground cabling and creation of construction compounds and the substation compound. Effects arising from these activities would be localised and largely reversible. Construction would result in a Moderate magnitude of change on landscape fabric within the Site in LCT 350 Peatland and Moorland which has Medium sensitivity as identified in **Technical Appendix 4.2: Landscape Character Types Sensitivity Assessment (EIAR Volume 4)**. This would result in a direct, temporary and short-term **Moderate** and **Significant** residual effect.

Effects on Landscape and coastal character

4.8.3 The construction phase would affect mainly LCT350 Peatland and Moorland in which the turbine array and associated development would be located and in which all the construction activities would take place. The character of this part of LCT350 has already been altered to a degree by the eastern part of SVT with most of the LCT unit undeveloped. Effects would be localised to construction locations and would be temporary and of short duration. The magnitude of change on the key characteristics of LCT350 would be Moderate at the Site at those areas directly affected by construction activities. The sensitivity of LCT350 is Medium and effects would be temporary and of short duration. The residual effect would be **Moderate** and **Not Significant** in the host unit.

4.8.4 On units of LCT350 beyond the Site, construction activities would not result in physical effects on landscape and would affect only the way in which landscape character is perceived and aesthetic or perceptual aspects of landscape character. The magnitude of change would be Slight on those units of LCT350 within 5 km of the Proposed Development. The magnitude of change would reduce to Slight/Negligible within 5-10 km and beyond that distance would reduce to Negligible. The residual effect would be **Moderate/Minor to Minor** and **Not Significant**. There would be no long term effects arising from construction activities on units of LCT350 beyond the Site.

4.8.5 Constructions effects on CCAs would arise mainly on CCA 27 Yell Sound from which construction activities would be noticeable in open views along Yell Sound. The magnitude of change would be Slight at most. The residual effect on this receptor of High/Medium sensitivity would be **Moderate/Minor** and **Not Significant**. There would be no long term effects arising from construction activities on other CCAs.

Effects on Landscape Designations and Classifications

4.8.6 No construction activities would take place in any designated landscapes or WLA. Construction activities would be perceptible mainly from Ronas Hill LLA and Ronas Hill and North Roe WLA due to the higher terrain at Ronas Hill and the fact that there are uninterrupted outlooks to

the ground plane of the Site from elevated area within the LLA and WLA. Construction activities would be noticeable from elevated parts of the WLA and LLA and would be perceived in the context of SVT. Ronas Hill LLA is of High/Medium sensitivity. The magnitude of change would be Negligible. The residual effect would be **Minor** and **Not Significant**.

4.8.7 Construction activities would also be perceptible from the North Roe area of Shetland NSA. The effects would be of short duration and would not result in any long term residual effects on SLQ or overall integrity of the NSA. At most the magnitude of change would be Slight/Negligible on this receptor of High overall sensitivity. The residual effect would be **Moderate/Minor** and **Not Significant**.

4.8.8 The effects on WLA42 are discussed below in relation to viewpoints within the WLA.

Effects on Visual Amenity

4.8.9 Most construction activities associated with the Proposed Development would be of a low height and screened from lower elevations by landform although such activities would be visible from more elevated areas such as Ronas Hill (**Figures 4.24a-f: Viewpoint 2: Mid Field Cairn (WLA) (EIAR Volume 3b)**). The taller vertical elements such as the wind turbines, and cranes would have the potential to be viewed by visual receptors within the wider landscape, but these effects would be of short duration. When considering all visuals receptors in the Study Area, the receptors affected would vary with the area under construction and the nature of effects would also vary. Construction works would have the most potential to exert an influence on views from Ronas Hill where receptors would be looking down onto the Site. Construction activities would bring vehicles and construction plant into part of the view where currently the main influence is SVT where construction activity is periodically visible. Operational and maintenance activity and vehicle movements are commonplace. Construction activity would therefore not be uncharacteristic of views in the direction of the Site. Receptors at Ronas Hill are of High sensitivity. The magnitude of change would be Slight. The residual effect would be **Moderate** and **Not Significant**. Effects would be of short duration and reversible.

4.8.10 Construction activities would also be visible from the community at Toft and Brough to the east of the Site (Viewpoints 7, 8 and 25) (see **Figures 4.29a-f: Viewpoint 7: Brough, Figures 4.30a-f: Viewpoint 8: Ferry Port - Toft - Revised Location** and **Figures 4.47a-h: Viewpoint 25: Toft (EIAR Volume 3b)**) Construction would be visible from Mossbank (Viewpoint 21) (see **Figures 4.43a-f: Viewpoint 21: Mossbank (EIAR Volume 3b)**) and from Graven and Scatsta area (Viewpoints 9 and 10) (see **Figures 4.31a-h: Viewpoint 9: Vantage Point by Houb of Scatsta (EIAR Volume 3b)** and **Figures 4.32a-f: Viewpoint 10: Cairn at Hill of Graven**) from Ollaberry (Viewpoints 3 and 22) (see **Figures 4.25a-f: Viewpoint 3: Ollaberry. St Magnus' Church** and **Figures 4.44a-h: Viewpoint 22: Ollaberry (EIAR Volume 3b)**) and from the southern part of Yell at Ulsta and Burravoe (Viewpoints 4 and 19) (see **Figures 4.26a-h: Viewpoint 4: Yell. Ulsta Shetland Ferry Terminal** and **Figures 4.41a-f: Viewpoint 19: Yell. B9081, west of Loch of Littlester (EIAR Volume 3b)**). Construction activities would be perceived intermittently and would be seen for a short duration. The magnitude of change would be Slight/Negligible. The residual effect would be **Moderate/Minor at most** and **Not Significant** for these settlements and communities. Effects would be of short duration and reversible.

Residual Operational Effects

Landscape Effects: Landscape Fabric

4.8.11 No additional adverse effects are anticipated on landscape fabric following completion of the construction phase. Restoration of construction compounds and track edges, borrow pit restoration, habitat creation and peatland restoration/enhancement would gradually mature, potentially with some localised enhancement to landscape condition and biodiversity potential (see **Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**.

Landscape Effects: Landscape Character Types

4.8.12 There are eight LCTs within the wider 45 km Study Area. Seven of these coincide with the detailed 30 km Study Area, and as shown on the ZTV on **Figure 4.7b: Landscape Character Types and Tip ZTV (EIAR Volume 3a),** there would be theoretical visibility of the Proposed Development mainly from LCT units within 10 km of the nearest proposed turbines and limited visibility within 10-20 km. Those LCT units beyond 20 km from the Site or with very limited potential visibility of the Proposed Development have been scoped out of further assessment. The remaining LCT units are assessed in detail in this section. **Technical Appendix 4.2: Landscape Character Types Sensitivity Assessment (EIAR Volume 4)** describes the key characteristics and sensitivity of the LCTs assessed.

LCT 350 PEATLAND AND MOORLAND

4.8.13 LCT 350 Peatland and Moorland is the host LCT and is shown on **Figure 4.7a: Landscape Character Types (EIAR Volume 3a)**. The Proposed Development would be situated entirely within a medium sized unit of LCT 350 that coincides with most of the Mio Ness peninsula. A further six units of LCT 350 are situated within 10 km of the Proposed Development with a further seven within 10-20 km giving a total of 14 units with the potential to be affected by the Proposed Development. The ZTV shown on **Figure 4.7b: Landscape Character Types and Tip ZTV (EIAR Volume 3a)** indicates theoretical visibility mainly from units of LCT 350 within 10 km with no or very limited theoretical visibility in units beyond 10 km. The assessment therefore focuses on those units within 10 km of the Proposed Development. LCT 350 is evaluated as being of Medium/Low sensitivity at the host unit and Medium sensitivity in the wider Study Area as described in **Technical Appendix 4.2: Landscape Character Types and Sensitivity Assessment (EIAR Volume 4)**.

4.8.14 The Proposed Development would affect mainly the following key characteristics of LCT 350:

- "Broadly undulating moorlands with occasional small hills, some areas with smaller scale undulations
- Expanses of smooth or hummocky heather moorland and boggy heather grassland;
- Rough, mainly unenclosed hill grazing
- Mainly uninhabited, with few roads and man-made structures
- Many visible archaeological relics indicating stages in historic land use
- Simple composition forms a contrasting backdrop to farmed lowlands, often marked by an abrupt boundary at the hill dyke
- High land provides vantage points for views
- Wild character in larger, remote areas."

4.8.15 In non-host LCT units the Proposed Development would have indirect effects on key characteristics, and such effects would be more strongly evident in those units where the influence of existing development is limited.

HOST LCT UNIT

4.8.16 In the host LCT unit the Proposed Development would introduce a large scale development into a landscape of moorland with a small hilltop feature (Hill of Crooksetter) that forms a minor focal point in views. The Proposed Development would change the landscape character of this unit resulting in a substantial change to baseline conditions. The character of the LCT unit would change to Peatland and Moorland with Wind Farm at the turbine array from Hill of Crooksetter northwards. To the west and south west of the proposed turbines the LCT unit has already been substantially modified by SVT. To the south and south east of the proposed turbines the influence on landscape character would reduce slightly as intervening peatland and moorland would be more evident as the separation distance to the proposed turbines increases.

4.8.17 The magnitude of change on key characteristics of the host unit would be Substantial at the turbine array and within approximately 1.5 km to the north and north east and to the south and south east. The residual effect would be **Major/Moderate** and **Significant** within 1.5 km of the Proposed Development to the north and north east and to the south and south east. Beyond 1.5 km the magnitude of change on the host unit would reduce to Substantial/Moderate although the residual effect would be **Major/Moderate** and **Significant** due to the lesser influence of SVT in those parts of the unit to the south east.

CALBECK NESS UNIT

4.8.18 The LCT unit to the west of the Proposed Development and immediately north of SVT is a low-lying area of peatland and moorland at Calbeck Ness where the key characteristics identified by NatureScot are not strongly evident. The LCT unit is influenced by SVT including the boundary fence to the terminal, an access road to a fenced compound in the north of the unit and navigation beacons. There is also a small concrete jetty in the northwest of the unit.

4.8.19 The Proposed Development would mainly affect the key characteristic of "*high land provides vantage points for views*" of the LCT unit and would increase the influence of development on the perceived uninhabited character and simple composition of features of the LCT. The magnitude of change would be Moderate and the residual effect would be **Moderate** and **Significant**.

GLUSS AYRE AND SCATSTA UNITS

4.8.20 Beyond the host LCT unit and the Calbeck Ness unit to the west of the Site, there are two units within 5 km at Gluss Ayre to the west and Scatsta to the south west. The Gluss Ayre unit extends from Gluss Isle in the north to Fugla Ness in the south. Key characteristics are evident in this unit. Views in the direction of the Proposed Development are strongly influenced by development at SVT, Sella Ness and Scatsta airfield.

4.8.21 The Proposed Development would be a very noticeable new feature in views from the LCT unit increasing the influence of development. The key characteristic of wildness is already affected to a degree by SVT. However, the Proposed Development would increase the influence of development on this key characteristic. The magnitude of change would be Moderate and the residual effect would be **Moderate** and **Significant** on Gluss Ayre unit.

4.8.22 The Scatsta unit is strongly influenced by Scatsta airfield where industrial development is located and the presence of large buildings, masts, mineral workings and the B9076 reduces the sense of wildness. SVT and Sella Ness industrial development influence views in the direction of the Proposed Development.

4.8.23 The Proposed Development would be a noticeable new feature in views from the LCT slightly increasing the influence of development on key characteristics. The magnitude of change would be Moderate. However, while the degree of change would be notable the residual effect would be **Moderate** and **Not Significant** due to the influence of existing development.

LCT 350 UNITS WITHIN 5-10 KM

4.8.24 The ZTV shown on **Figure 4.7b: Landscape Character Types and Tip ZTV (EIAR Volume 3a)** indicates theoretical visibility from a large unit of LCT 350 that extends from Ness of Queyfirth in the north east to Ura Firth in the south west with the A970 passing through the central part of the unit. The ZTV indicates visibility of the Proposed Development mainly from elevated parts of the unit to the east of Urafirth, at Faan Hill and Ness of Queyfirth.

4.8.25 The Proposed Development would affect views from elevated areas and affect the perceived wildness of this unit which is already influenced to a degree by views of SVT, the settled coastal edge to the east and the A970. The magnitude of change would be Moderate and the residual effect would be **Moderate** and **Not Significant** east of the A970. West of the A970 the magnitude of change would be Moderate/Slight and the residual effect would be **Moderate/Minor** and **Not Significant**.

4.8.26 There are two units of LCT 350 to the southeast of the Proposed Development at the Lunna peninsula and the ZTV shown on **Figure 4.7b: Landscape Character Types and Tip ZTV (EIAR Volume 3a)** indicates visibility from both. The small northern unit coincides with Ness of Setter, and from this unit the Proposed Development would be seen as a noticeable but minor focal point. It would affect views from the LCT unit, but there would be no notable effect on other key characteristics. The magnitude of change would be Moderate/Slight and the residual effect would be **Moderate/Minor** and **Not Significant**.

4.8.27 The larger unit to the south lies between Vidlin Voe and Swining Voe and **Figure 4.7b: Landscape Character Types and Tip ZTV (EIAR Volume 3a)** indicates visibility of the proposed turbines mainly from the northern part of the unit. The magnitude of change would be Moderate/Slight and the residual effect would be **Moderate/Minor** and **Not Significant**.

LCT 350 UNITS WITHIN 10-20 KM

4.8.28 Beyond 10 km the effects of the Proposed Development on key characteristics of LCT 350 would reduce due to intervening distance. The most notable effects would be on the South Yell unit from which there would be visibility from the western edge and elevated moorland interior. Effects would occur on views from elevated areas and on the sense of wildness which is more strongly evident in the interior of this unit due to the absence of development. The magnitude of change would be Moderate/Slight and the residual effect would be **Moderate/Minor** and **Not Significant**.

4.8.29 The magnitude of change on other units of this LCT would be no greater than Moderate/Slight and the residual effects would be no greater than **Moderate/Minor** and **Not Significant**.

LCT 354 FARMED AND SETTLED VOES AND SOUNDS

4.8.30 There are 11 units of LCT 354 within 10 km of the Proposed Development and a further six within 10-20 km. The ZTV shown on **Figure 4.7b: Landscape Character Types and Tip ZTV (EIAR Volume 3a)** indicates theoretical visibility from units mainly within 10 km of the Proposed Development. The landscape of the LCT has been extensively modified in places, and in general the influence of human activity is evident throughout the units assessed. LCT 354 is evaluated as being of Low to Medium sensitivity as described in **Technical Appendix 4.2: Landscape Character Types and Sensitivity Assessment (EIAR Volume 4)**.

4.8.31 The Proposed Development would mainly affect the following key characteristics of LCT 354:

- "Rural areas provide a contrasting backdrop and setting for settlements;
- Rural areas and settlements contrast with the surrounding, large scale hill land;
- Views are ever-changing due to the complex coastline and interlocking landforms; and
- Remote settlements have a strong sense of isolation and tranquillity."

SULLOM VOE TERMINAL UNIT

4.8.32 This unit is situated 0.9 km to the west of the nearest proposed turbine. Viewpoint 9 (**Figures 4.31a-f: Viewpoint 9: Vantage Point by Houb of Scatsa (EIAR Volume 3b)**) is situated at the edge of this unit in the south. It is strongly influenced by SVT and industrial development at Sella Ness which occupy most of the land within the LCT. Key characteristics of LCT 354 are not strongly evident at the SVT unit and it is therefore of Low sensitivity.

4.8.33 The Proposed Development would be a very noticeable new feature in views from the LCT unit. While it would introduce a new type of development, the scale of development and context would not be inconsistent with the baseline. The magnitude of change would be Moderate and the residual effect would be **Moderate/Minor** and **Not Significant**.

TOFT UNIT

4.8.34 The Toft unit is adjacent to the Site to the east. Viewpoints 7 (**Figures 4.28a-f: Viewpoint 7: Brough**), 8 (**Figures 4.30a-f: Viewpoint 8: Toft Ferry Terminal**) and 25 (**Figures 4.47a-f: Viewpoint 25: Toft**) (**EIAR Volume 3b**) are located in this unit. The unit is largely undeveloped apart from the Toft ferry terminal and the A968 which have a localised influence. Key characteristics of LCT 354 are evident in this unit and it is of Medium sensitivity.

4.8.35 The Proposed Development would be a very noticeable new feature in views from the LCT unit. It would contrast with existing land use and the scale and type of existing development. It would influence views to the west but not the main outlooks from this area to the east. The magnitude of change would be Moderate and the residual effect would be **Moderate** and **Significant**.

MOSSBANK UNIT

4.8.36 The Mossbank unit is an extensive unit that extends from Mossbank in the north and coinciding with the coastline and headlands to the south as far as Swining Voe. Viewpoints 6 (**Figures 4.28a-f: Viewpoint 6: Gardaness Hill**), and 21 (**Figures 4.43a-f: Viewpoint 21: Mossbank**) (**EIAR Volume 3b**) are located in this unit. The unit is largely undeveloped apart from the larger settlement at Mossbank and the A968 which have a localised influence. Key characteristics of LCT 354 are evident in this unit and it is of Medium sensitivity.

4.8.37 The ZTV shown on **Figure 4.7b: Landscape Character Types and Tip ZTV (EIAR Volume 3a)** indicates the Proposed Development would be visible mainly from the northern part of the LCT unit at Burra Ness and Mossbank. The Proposed Development would be a very noticeable new feature in views from the LCT unit. It would contrast with existing land use and the scale and type of existing development. It would influence views to the north west from a small part of the LCT unit but not the main outlooks from the northern part or from the majority of the LCT unit. The magnitude of change would be Moderate and the residual effect would be **Moderate** and **Significant** only in the northern part of the LCT unit at Burraness and Mossbank. For the remainder of the LCT unit the magnitude of change would be Slight at most, and the residual effect would be **Moderate/Minor** and **Not Significant**.

OLLABERRY UNIT

4.8.38 The Ollaberry unit extends from Ollaberry in the north to North Gluss in the south. Viewpoints 3 (**Figures 4.25a-f: Viewpoint 3: Ollaberry St Magnus Church**), 13 (**Figures 4.35a-f: Viewpoint 13: North Gluss**) and 22 (**Figures 4.44a-f: Viewpoint 22: Ollaberry**) (**EIAR**

Volume 3b) are located in this unit. The unit is well settled with views strongly influenced by Yell Sound in which SVT is visible. Key characteristics of LCT 354 are evident in this unit and it is of Medium sensitivity.

4.8.39 The ZTV shown on **Figure 4.7b: Landscape Character Types and Tip ZTV (EIAR Volume 3a)** indicates the Proposed Development would be visible from most of the LCT unit. The Proposed Development would be a very noticeable new feature in views from the LCT unit contrasting with existing land use and the rural character. However, most of the key characteristics would be unaffected. The magnitude of change would be Moderate and the residual effect would be **Moderate** and **Not Significant**.

SULLOM UNIT

4.8.40 The Sullom unit extends from the village of Sullom in the north to Mavis Grind in the south. Viewpoint 14 (**Figures 4.36a-f: Viewpoint 14: Minor Road south of Sullom (EIAR Volume 3b)**) is located in this unit. The unit is largely undeveloped and lightly settled. Key characteristics of LCT 354 are evident in this unit and it is of Medium sensitivity.

4.8.41 The ZTV shown on **Figure 4.7b: Landscape Character Types and Tip ZTV (EIAR Volume 3a)** indicates the Proposed Development would be visible mainly from the eastern part of the LCT unit. The Proposed Development would be a noticeable new feature in views from the LCT unit and would be seen in the context of SVT which has a notable influence on views from the northern part of the LVT unit. The magnitude of change would be Moderate/Slight at most, and the residual effect would be **Moderate/Minor** and **Not Significant**.

LUNNA AND NORTH NESTING UNIT

4.8.42 Lunna and North Nesting unit is an extensive unit that extends from the northeastern part of the Lunna peninsula in the north and coinciding with the coastline and headlands to the south as far as Dury Voe to the east of operational Viking Wind Farm. Viewpoints 5 (**Figures 4.27a-f: Viewpoint 5: Parking at Outrabister, Lunna Ness**) and 17 (**Figures 4.39a-f: Viewpoint 17: Minor Road, Lunna Ness(EIAR Volume 3b)**) are located in this unit. The unit is largely undeveloped in the north apart from the larger settlement at Vidlin. The south is influenced by operational Viking Wind Farm and the A968 which have a localised influence. Key characteristics of LCT 354 are evident in this unit and it is of Medium sensitivity.

4.8.43 The ZTV shown on **Figure 4.7b: Landscape Character Types and Tip ZTV (EIAR Volume 3a)** indicates the Proposed Development would be visible only from the northern part of the LCT unit at Lunna peninsula. The Proposed Development would be a noticeable new focal point in views from the LCT unit. It would contrast with existing land use and the scale and type of existing development. It would influence views to the north west from a small part of the LCT unit but not the main outlooks from the northern part of the LCT unit. The magnitude of change would be Moderate/Slight and the residual effect would be **Moderate/Minor** and **Not Significant** only in the northern part of the LCT unit.

ULSTA AND WEST YELL UNIT

4.8.44 Ulsta and West Yell unit extends from the northern part of West Yell in the north to Ness of Copister in the southeast. Viewpoints 4 (**Figures 4.26a-f: Viewpoint 4 Yell Ulsta Ferry Terminal**), and 18 (**Figures 4.40a-f: Viewpoint 18: Yell, A968 (EIAR Volume 3b)**) are located in this unit. The unit is lightly settled and largely undeveloped apart from Ulsta ferry terminal and the A968 which have a localised influence. Key characteristics of LCT 354 are evident in this unit and it is of Medium sensitivity.

4.8.45 The ZTV shown on **Figure 4.7b: Landscape Character Types and Tip ZTV (EIAR Volume 3a)** indicates the Proposed Development would be visible from most of the LCT unit. The Proposed Development would be a very noticeable new feature in views from the south of the

LCT unit where it would be seen in close proximity. It would contrast with existing land use and the scale and type of existing development. The magnitude of change would be Moderate and the residual effect would be **Moderate** and **Significant** in the southern part of the LCT unit. For the remainder of the LCT unit the magnitude of change would be Moderate/Slight at most and the residual effect would be **Moderate/Minor** and **Not Significant**.

BURRAVOE UNIT, YELL

4.8.46 The Burravoe unit coincides with the settled area between Hamna Voe in the west and Burravoe in the east. Viewpoint 19 (**Figures 4.41a-f: Viewpoint 19: Yell, B9081, west of Loch of Littlester (EIAR Volume 3b)**) is located in this unit. The unit is well settled and otherwise largely undeveloped. Key characteristics of LCT 354 are evident in this unit and it is of Medium sensitivity.

4.8.47 The ZTV shown on **Figure 4.7b: Landscape Character Types and Tip ZTV (EIAR Volume 3a)** indicates the Proposed Development would be visible from most of the LCT unit. The Proposed Development would be a noticeable new feature in views and a minor focal point but would not fundamentally change any key characteristics of this LCT unit. The magnitude of change would be Moderate/Slight and the residual effect would be **Moderate/Minor** and **Not Significant**.

LCT 356 SMALL UNINHABITED ISLANDS

4.8.48 This LCT is experienced from other inhabited islands, from Shetland Mainland and from Toft to Ulsta ferry route. LCT 356 is evaluated as being of High/Medium sensitivity as described in **Technical Appendix 4.2: Landscape Character Types Sensitivity Assessment (EIAR Volume 4)**. The Proposed Development would mainly affect the following key characteristics of LCT 356:

- "Small, low-lying, often oval-shaped islands
- Islands are frequently the focus of views from inhabited islands and the Shetland Mainland
- Sense of remoteness, wild character and history."

4.8.49 The Proposed Development would affect views towards the small uninhabited islands mainly from those areas of land overlooking Yell Sound to the north west and north east of the Site and from the Toft-Ulsta ferry route. The proposed turbines would be large in scale and would contrast with the small scale of the islands which are low lying features generally seen against the backdrop of sea or land when viewed from the shoreline. The perception of remoteness would be affected to a degree although the difficulty accessing these islands and their uninhabited character would not be affected.

4.8.50 The magnitude of change would be Moderate and the residual effect would be **Moderate** and **Significant**.

LCT 349 MAJOR UPLANDS

4.8.51 There are three units of LCT 349 within 10 km of the Proposed Development. The ZTV shown on **Figure 4.7b: Landscape Character Types and Tip ZTV (EIAR Volume 3a)** indicates theoretical visibility mainly from two of these units. One to the south that extends from Hill of Swinster in the north east to Olna Firth in the south. The other units coincide with Ronas Hill and extend north to Beorgs of Skelberry (198 m AOD) to the south west of the village of North Roe. LCT 349 is evaluated as being of High/Medium sensitivity as described in **Technical Appendix 4.2: Landscape Character Types Sensitivity Assessment (EIAR Volume 4)**. The Proposed Development would mainly affect the following key characteristics of LCT 349:

- "Mainly uninhabited and often difficult to access on foot or by road, with roads mainly absent on higher land
- Exposed high land with panoramic views, forming landmark features which themselves are often visible for miles
- Relatively expansive, although scale is difficult to discern and reduced by the presence of manmade structures."

SOUTHERN UNIT

4.8.52 Viewpoints 10 (**Figures 4.32a-f: Viewpoint 10: Cairn at Hill of Graven**), 11 (**Figures 4.33a-f: Viewpoint 11: Minor Road between Southlee and Graven**) and 20 (**Figures 4.42a-f: Viewpoint 20: A968 South of Firths Voe**) (**EIAR Volume 3b**) are located at the northern edge of this unit. The ZTV shown on **Figure 4.7b: Landscape Character Types and Tip ZTV (EIAR Volume 3a)** indicates that the Proposed Development would be visible from higher elevations and north facing slopes in the northern half of the LCT unit. In the northernmost part of the LCT unit and from elevated areas at Hill of Oxnaboll and Mid Field, the Proposed Development would be a very noticeable new feature in views to the north. SVT is an existing influencing feature and wider views from this northern part of the LCT unit would not be affected. However, the Proposed Development would be a notable focal point, and the magnitude of change would be Moderate. The residual effect would be **Major/Moderate** and **Significant**.

4.8.53 In the areas at and to the south of Hill of Trondavoe, the influence of the Proposed Development would reduce. It would be a noticeable new feature but would not considerably alter key characteristics. The magnitude of change would be Moderate/Slight and the residual effect would be **Moderate** and **Not Significant**.

RONAS HILL UNIT

4.8.54 Viewpoint 2 (**Figures 4.24a-f: Viewpoint 2: Ronas Hill Mid Field (EIAR Volume 3b)**) is located in this unit and the ZTV shown on **Figure 4.7b: Landscape Character Types and Tip ZTV (EIAR Volume 3a)** indicates theoretical visibility mainly from the hill tops and south and south east facing slopes of Ronas Hill and south facing slopes of the low hills in the north of the unit. The Proposed Development would be a noticeable new focal point in views and would influence the perceived uninhabited character to a degree. However, the large scale of the views and the available views all around means there would be limited influence on the scale of landscape and the composition of views.

4.8.55 The magnitude of change would be Moderate/Slight and the residual effect would be **Moderate** and **Not Significant**.

LCT 351 UNDULATING MOORLAND AND LOCHS

4.8.56 There are three units of this LCT within 10 km of the Proposed Development at North Roe to the north west, Burraland to the west and on Lunna peninsula to the south east. LCT 351 is evaluated as being of High/Medium sensitivity as described in **Technical Appendix 4.2: Landscape Character Types Sensitivity Assessment (EIAR Volume 4)**. The Proposed Development would affect mainly the following key characteristics of LCT 351:

- "Settlement is mainly absent and there are few man-made structures
- Remoter areas have wild character."

4.8.57 Viewpoint 15 (**Figure 4.37a-f: Viewpoint 15: A970 Layby, Burraland) (EIAR Volume 3b)**) is situated in the Burraland Unit and Viewpoint 17 (**Figures 4.39a-f: Viewpoint 17: Minor Road Lunna Ness (EIAR Volume 3b)**) is on the edge of the Lunna peninsula unit. The Proposed Development would increase the influence of man-made structures on

landscape character and would influence the wild character of all three units to a degree. These changes to key characteristics would be discernible, but the overall influence on landscape character would be limited due to intervening distance.

4.8.58 The magnitude of change would be Moderate/Slight and the residual effect would be **Moderate** and **Not Significant** on LCT351.

LCT 355 COASTAL EDGE

4.8.59 LCT 355 coincides with narrow stretches of land along the coast. A unit at North Roe and one on the west coast of Yell are partly within 10 km of the Proposed Development and two units to the north show visibility of the Proposed Development. Other units are either distant and/or show no or limited visibility of the Proposed Development. LCT 355 is evaluated as being of High/Medium sensitivity as described in **Technical Appendix 4.2: Landscape Character Types Sensitivity Assessment (EIAR Volume 4)**. The Proposed Development would mainly affect the following key characteristics of LCT 355:

- "Undeveloped and uninhabited, and mostly inaccessible by road
- Diverse and dramatic coastal scenery with a variety of coastal views
- Remote, exposed, open and highly natural landscape with wild character."

NORTH ROE UNITS

4.8.60 From the southern unit the Proposed Development would be a very noticeable new feature in views south along the coast and down Yell Sound. It would be a focal point and although it would be seen in the context of SVT, the influence of existing development on landscape character is somewhat reduced at this distance. The magnitude of change would be Moderate and the residual effect would be **Moderate** and **Significant** in the southern unit.

4.8.61 In the northern unit effects would reduce as the Proposed Development would be seen from only a small part of the unit and as a distant feature from a part of the LCT where there are views all around. The magnitude of change would be Slight and the residual effect would be **Moderate/Minor** and **Not Significant** on the northern unit.

WEST YELL UNITS

4.8.62 The southern unit coincides with the west coastline of Ness of West Sandwick. The ZTV shown on **Figure 4.7b: Landscape Character Types and Tip ZTV (EIAR Volume 3a)** show visibility from the southern and northern parts of this small unit. The Proposed Development would be partly screened by landform in the northern part of this unit. The magnitude of change would be Moderate/Slight and the residual effect would be **Moderate/Minor** and **Not Significant** in the southern unit.

4.8.63 The northern unit is extensive encompassing the western part of the coast between West Sandwick and Nev of Stuis and the west side of Whale Firth. The ZTV shown on **Figure 4.7b: Landscape Character Types and Tip ZTV (EIAR Volume 3a)** indicates very limited theoretical visibility mainly from the southern part of the unit at The Head and at the hill tops of Varnadil (102 m AOD) and Rulkies Hill (115 m AOD). The Proposed Development would be a minor feature in wider panoramic views although it would influence the perceived undeveloped and wild character of the coast to a degree. The magnitude of change would be Slight and the residual effect would be **Moderate/Minor** and **Not Significant** on the northern unit.

LCT 353 FARMED AND SETTLED LOWLANDS AND COAST

4.8.64 Two units of LCT 353 are partly within 10 km of the Proposed Development. These two areas are adjacent to the southern North Roe unit of LCT 355 and the southern West Yell unit of LCT

355 respectively. A third unit in North Roe also shows visibility and coincides with Shetland NSA. Other units are either distant and/or show no or limited visibility of the Proposed Development. LCT 353 is evaluated as being of High/Medium sensitivity as described in **Technical Appendix 4.2: Landscape Character Types and Sensitivity Assessment (EIAR Volume 4)**. The Proposed Development would affect mainly the following key characteristics of LCT 353:

- "Open, windswept landscapes with little shelter and constant views of the coastline, and across voes and sounds to other land."

NORTH ROE UNITS

4.8.65 From the southern unit the Proposed Development would be a very noticeable new feature in views down Yell Sound. It would be a focal point and seen in the context of SVT and the modified landscape of LCT 353. However, it would be seen from only a small part of the unit. The magnitude of change would therefore be Moderate/Slight and the residual effect would be **Moderate** and **Not Significant** in the southern unit.

4.8.66 In the northern unit effects would reduce as the Proposed Development would be seen from only small parts of the unit and as a distant feature (see Viewpoint 1, **Figures 4.23a-f: Viewpoint 1: Minor Track North Roe (EIAR Volume 3b)**). The magnitude of change would be Slight and the residual effect would be **Moderate/Minor** and **Not Significant** on the northern unit.

WEST YELL UNIT

4.8.67 This unit is small and associated with the settlement of West Sandwick. The Proposed Development would be visible from elevated areas and it would be seen in the context of the scattered settlement in the LCT unit and modified pasture. Views across Yell Sound to the west would not be affected nor would wider views from elevated areas. The magnitude of change would be Slight and the residual effect would be **Moderate/Minor** and **Not Significant** on the northern unit.

Seascape Effects: Coastal Character Areas

4.8.68 There are 36 CCAs within the wider 45 km Study Area. **Figure 4.8b: Coastal Character Areas with Tip ZTV (EIAR Volume 3a)** indicates there would be theoretical visibility mainly from three of the CCAs with very limited or no theoretical visibility from remaining CCAs within the 30 km study area. The three CCAs are assessed in detail in this section. **Technical Appendix 4.3: Coastal Character Areas Sensitivity (EIAR Volume 4)** describes the key characteristics and sensitivity of the LCTs assessed.

CCA 27 YELL SOUND

4.8.69 **Figure 4.8a: Coastal Character Areas (EIAR Volume 3a)** shows that CCA 27 is mainly to the north of the Proposed Development and extends to the east between Burra Ness and Ness of Copister. CCA 27 is evaluated as being of High/Medium sensitivity overall as described in **Technical Appendix 4.3: Coastal Character Areas Sensitivity (EIAR Volume 4)**. The Proposed Development would affect mainly the southern, more developed part of the CCA although it would also have a limited influence on the perceived remoteness of the northern part and could compete with Ronas Hill as a landscape feature.

4.8.70 The ZTV shown on **Figure 4.8b: Coastal Character Areas with Tip ZTV (EIAR Volume 3a)** shows there would be visibility of the Proposed Development from most of the open water of CCA 27 and from most of the coastline. The analysis of effects on landscape character described above and the assessment of effects on viewpoints in **Technical Appendix 4.4:**

Viewpoint Assessment (EIAR Volume 4) indicate that the effects of the Proposed Development are more likely to be significant within 10 km of the nearest proposed turbine.

4.8.71 The key characteristic of remoteness in the northern part of CCA 27 is unlikely to be significantly affected due to the distance to the Proposed Development and the wider experience drawing upon views east and west and to the north. In the southern part of CCA 27 the key characteristic of remoteness is less evident and the contrast of the Proposed Development would be less.

4.8.72 The Proposed Development could compete with Ronas Hill as a landscape feature in views from the south east where there would be combined visibility of both the Proposed Development and Ronas Hill as shown on Viewpoints 4 (**Figure 4.26a-f: Viewpoint 4: Yell, Ulsta Ferry Terminal**), 21 (**Figure 4.43a-f: Viewpoint 21: Mossbank**) and 26 (**Figure 4.48a-f: Viewpoint 26: Toft-Ulsta Ferry**) (**EIAR Volume 3b**). However, it would not be seen overlapping the profile of Ronas Hill and would only affect the perception of this key characteristic from a small part of CCA 27 in the southeast.

4.8.73 Given the key characteristics of CCA 27 and accounting for the analysis of effects reported for adjacent LCT and viewpoints within and adjacent to CCA 27 the magnitude of change is considered to be Substantial/Moderate within 2-3 km, Moderate within 3-6 km, Moderate/Slight within 6-10 km and Slight at most beyond 10 km. The residual effect would be **Major/Moderate** and **Significant** within 2-3 km, **Moderate** and **Significant** within 3-6 km, **Moderate** and **Not Significant** within 6-10 km and **Moderate/Minor** and **Not Significant** at most beyond 10 km.

CCA 26 SULLOM VOE

4.8.74 **Figure 4.8a: Coastal Character Areas (EIAR Volume 3a)** shows that CCA 26 is to the west and south west of the Proposed Development and extending from Calback Ness and Gluss Isle in the north to the Mavis Grind in the south. CCA 26 is evaluated as being of Medium/Low sensitivity in the north where SVT has a strong influence and Medium sensitivity in the south as described in **Technical Appendix 4.3: Coastal Character Areas Sensitivity (EIAR Volume 4)**. The Proposed Development would affect mainly the northern, more developed part of the CCA although it could compete with Ronas Hill as a dominant feature.

4.8.75 The ZTV shown on **Figure 4.8b: Coastal Character Areas with Tip ZTV (EIAR Volume 3a)** shows there would be visibility of the Proposed Development from most of the open water of CCA 26 between Ness of Haggrister and Calback Ness and from most of the coastline except a stretch in the south of the CCA to the north of Brae. The analysis of effects on landscape character described above and the assessment of effects on viewpoints in **Technical Appendix 4.4: Viewpoint Assessment (EIAR Volume 4)** indicate that the effects of the Proposed Development are more likely to be significant within 10 km of the nearest proposed turbine.

4.8.76 The key characteristic of Ronas Hill as a dominant landscape feature is unlikely to be affected by the Proposed Development due to intervening distance. The Proposed Development would be visible in a separate part of the view from Ronas Hill and combined visibility is not possible due to the orientation of CCA 26 relative to Ronas Hill and the Proposed Development.

4.8.77 The Proposed Development would affect views across and along Sullom Voe as shown in Viewpoints 3 (**Figures 4.25a-f: Viewpoint 3: Ollaberry. St Magnus' Church**), 9 (**Figures 4.31a-h: Viewpoint 9: Vantage Point by Houb of Scatsta**), 10 (**Figures 4.32a-f: Viewpoint 10: Cairn at Hill of Graven**), 13 (**Figures 4.35a-f: Viewpoint 13: North Gluss**), 14 (**Figures 4.36a-f: Viewpoint 14: Minor Road south of Sullom**) and 22

(**Figures 4.44a-h: Viewpoint 22: Ollaberry**) (**EIAR Volume 3b**) and as described in the viewpoint assessment in **Technical Appendix 4.4: Viewpoint Assessment (EIAR Volume 4)**. Given the key characteristics of CCA 26 and accounting for the analysis of effects reported for adjacent LCT and viewpoints within and adjacent to CCA 26 the magnitude of change is considered to be Moderate within 5 km and Moderate/Slight at most beyond 5 km. The residual effect would be Moderate and Not Significant within 5 km and **Moderate** and **Not Significant** at most beyond 10 km.

CCA 3 LUNNA NESS

4.8.78 **Figure 4.8a: Coastal Character Areas (EIAR Volume 3a)** shows that CCA 3 is to the south east and east of the Proposed Development and extends east to a line between Lunning Head to the east of Lunna peninsula and Heoga Ness in the south east of Yell. CCA 3 is evaluated as being of High/Medium sensitivity overall as described in **Technical Appendix 4.3: Coastal Character Areas Sensitivity (EIAR Volume 4)**. The Proposed Development would affect mainly the Lunna Ness peninsula and the east coast of Burra Ness.

4.8.79 The ZTV shown on **Figure 4.8b: Coastal Character Areas with Tip ZTV (EIAR Volume 3a)** shows there would be visibility of the Proposed Development from open water of CCA 3 east of Burra Ness and north of Lunna peninsula. There would be no visibility from the enclosed waters of Dales Voe, Colla Firth and Swining Voe. The analysis of effects on landscape character described above and the assessment of effects on viewpoints in **Technical Appendix 4.4: Viewpoint Assessment (EIAR Volume 4)** indicate that the effects of the Proposed Development are more likely to be significant within 10 km of the nearest proposed turbine.

4.8.80 There would be limited effects on the key characteristic described in **Technical Appendix 4.3: Coastal Character Areas Sensitivity (EIAR Volume 4)**. However, accounting for the analysis of effects reported for adjacent LCT and viewpoints within and adjacent to CCA 3 the magnitude of change is considered to be Moderate within 5 km, and Moderate/Slight within 5-10 km and Slight at most beyond 10 km. The residual effect would be **Moderate** and **Significant** within 5 km, **Moderate** and **Not Significant** within 5-10 km and **Moderate/Minor** and **Not Significant** at most beyond 10 km.

Visual Effects: Settlements and Settled Areas

4.8.81 This section describes the assessment of effects of settlements and settled areas. The ZTVs shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate that theoretical visibility from settled areas would occur mainly within 10 km of the nearest proposed turbine. Within 10-20 km visibility of the Proposed Development would reduce considerably coinciding mainly with uninhabited areas or locations with distant views. Visualisations at viewpoints in settled areas are shown in **EIAR Volume 3b**. The viewpoints of most relevance are referred to in this section.

4.8.82 All residential properties within 2 km are assessed in the residential visual amenity assessment described in **Technical Appendix 4.7: Residential Visual Amenity Assessment (EIAR Volume 4)**.

4.8.83 All settlements are evaluated to be of High sensitivity to the Proposed Development.

MOSSBANK

4.8.84 Mossbank is situated approximately 2.85 km to the east south east of the nearest proposed turbine. The main outlook from the village is north east to south. The ZTVs shown on **Figure**

4.5: Zone of Theoretical Visibility (30 km) Tip Height and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate there would be visibility of turbines at nacelle height only from the northeastern part of the village. Viewpoint 21 (**Figures 4.43a-f: Viewpoint 21: Mossbank (EIAR Volume 3b)**) indicates that all eight proposed turbines would be visible from a small area in the north eastern part of the village. Up to six turbines would be seen from areas to the south of the pier.

4.8.85 Where visible, the proposed turbines would be a notable new focal point in views from a localised area in Mossbank. In views from the north eastern part of the village the proposed turbines would occupy a moderate proportion of the view. The proposed turbines would be seen beyond a foreground of settlement, pasture and rough grazing but would not affect the main outlook to the east across Yell Sound.

4.8.86 The magnitude of change in the north eastern part of Mossbank would be Substantial/Moderate and the residual effect would be **Major/Moderate** and **Significant**.

4.8.87 There would be visibility of blade tips only from the Maidenfield area in the south west of the village. The magnitude of change at Maidenfield be **Negligible** and the residual effect would be **Minor** and **Not Significant**.

SCATSTA, GRAVEN AND GARTH AREA

4.8.88 The ZTVs shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate that up to six proposed turbines would be visible to nacelle height from Graven and Garth area. From the Scatsta area there would be visibility of up to eight turbines to nacelle height.

4.8.89 As mentioned in **Section 4.4** views in this settled area are strongly influenced by SVT, Sella Ness industrial area and development at Scatsta. Viewpoints 9 and 10 (**Figures 4.31a-f: Viewpoint 9: Vantage Point by Houb of Scatsta and 4.32a-f: Viewpoint 10: Cairn at Hill of Graven (EIAR Volume 3b)**) show views from the Graven/Scatsta area while Viewpoint 11 (**Figures 4.33a-f: Viewpoint 11: Minor Road between Southlee and Graven (EIAR Volume 3b)**) shows views from the settled valley to the east of Graven.

4.8.90 From these areas the Proposed Development would be seen as a new type of development. It would be associated with existing development in the locality and would not be out of scale with existing features or landform. Existing industrial development has less of an influence to the east of Graven.

4.8.91 Where visible, the Proposed Development would be a new focal point and a very noticeable new feature on the skyline occupying a moderate extent of wider views available in this settlement area. Main views along the coast to the southwest and north along Sullom Voe would not be affected.

4.8.92 The magnitude of change would be **Substantial/Moderate** and the residual effect would be **Major/Moderate** and **Significant**.

BRAE AND BUSTA

4.8.93 The ZTVs shown of **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate there would be visibility of blade tips of up to six proposed turbines from a small area in the west of Brae. There would be no visibility from most of Brae due to screening by landform. The ZTVs also indicate visibility of up to six turbines from small areas at Busta. Viewpoint 16 (**Figures 4.38a-f: Viewpoint 16: Busta Road, Ladies Mire (EIAR Volume**

3b)) is representative of views from the Brae and Busta area and shows that mainly Turbine 1 and Turbines 6-8 would be visible at a gap between landform behind the village of Brae. The proposed turbines would be seen as a minor feature in widely available views from this location with landform screening most of the Proposed Development.

4.8.94 The magnitude of change would be Slight and the residual effect would be **Moderate** and **Not Significant**.

HAGGRISTER TO SULLOM

4.8.95 This area of scattered settlement is situated on the west side of Sullom Voe. The main outlooks are across the voe or to the northeast along the voe to SVT which is a notable feature. The ZTVs shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate there would be visibility of up to eight turbines from this settled area. Viewpoint 14 (**Figures 4.36a-f: Viewpoint 14: Minor Road south of Sullom (EIAR Volume 3b)**) shows that the proposed turbines would be seen behind SVT occupying the same part of the view as the existing development.

4.8.96 The proposed turbines would be a noticeable new feature occupying a small part of the available views and perceived as part of existing development at SVT. The proposed turbines would introduce a new type of development but would not be wholly uncharacteristic of the scale of development in that part of the view.

4.8.97 The magnitude of change would be Moderate/Slight and the residual effect would be **Moderate** and **Not Significant**.

OLLABERRY AND NORTH GLUSS

4.8.98 Ollaberry and North Gluss are the two main areas of settlement between Sullom and South Collafirth. There are single dwellings and farmsteads scattered throughout this area. The ZTVs shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate there would be visibility of up to eight turbines from this settled area. Viewpoints 3 (**Figures 4.25a-f: Viewpoint 3: Ollaberry. St Magnus' Church**), 13 (**Figures 4.35a-f: Viewpoint 13: North Gluss**) and 22 (**Figure 4.44a-f: Viewpoint 22: Ollaberry**) (**EIAR Volume 3b**) are situated in this area.

4.8.99 At North Gluss the proposed turbines would be seen on a horizontal part of the horizon and close to SVT and would be a notable new focal point in part of the view where existing development is an influencing factor. The large scale landform and simple horizontal horizon mean that the proposed turbines would not conflict with the scale or complexity of the view composition. The proposed turbines would occupy a moderate part of available views and would be seen as a notable focal point in a large scale landscape.

4.8.100 At North Gluss the magnitude of change would be Moderate and the residual effect would be **Major/Moderate** and **Significant**.

4.8.101 At Ollaberry the Proposed Development would introduce large scale wind turbines into views out from Ollaberry and across Yell Sound. Views are directed outward to the east and south east and the proposed turbines would result in notable change the composition of views extending across a large part of the main outlook.

4.8.102 At Ollaberry the magnitude of change would be Substantial/Moderate and the residual effect would be **Major/Moderate** and **Significant**.

NORTH ROE

4.8.103 This settled area includes North and South Collafirth from which there would be very limited visibility due to landform screening by Ness of Queyfirth and the effects would be Negligible or None.

4.8.104 There would be views of the Proposed Development from the eastern part of Housetter. All eight of the proposed turbines would be visible and seen in conjunction with SVT. The Proposed Development would be a new focal point in views down the valley and along Sullom. The magnitude of change would be Moderate and the residual effects would be **Major/Moderate** and **Significant**.

4.8.105 At North Roe the Proposed Development would be visible from a small area in the north eastern part of the village. Viewpoint 1 (**Figures 4.23a-f: Viewpoint 1: Minor Track North Roe (EIAR Volume 3b)**) shows that the proposed turbines would be perceived as a minor focal point in views and would have a limited influence on visual amenity at North Roe village.

4.8.106 The magnitude of change would be Moderate/Slight and the residual effect would be **Moderate** and **Not Significant**.

LUNNA PENINSULA

4.8.107 The ZTVs shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate that up to eight proposed turbines would be visible from the settled Lunna peninsula. The main outlooks from this area are north and north west. Viewpoint 5 (**Figures 4.27a-f: Viewpoint 5: Parking at Outrabister, Lunna Ness (EIAR Volume 3b)**) and Viewpoint 17 (**Figures 4.39a-f: Viewpoint 17: Minor road - Newhouse, Lunna Ness (EIAR Volume 3b)**) are situated on the peninsula and show that the Proposed Development would contrast with the undeveloped rural and seascape character of the views. The turbines would be perceived as relatively distant and separated from Lunna peninsula by an intervening expanse of sea appearing large relative to the low lying land on which they would be sited. The turbines would be large in scale compared with existing development and would form a noticeable focal point. Further to the south on the peninsula where there are more settlement and intervening landform there would be slightly less contrast with the baseline.

4.8.108 At Lunna peninsula the magnitude of change would be Moderate and the residual effect would be **Major/Moderate** and **Significant**.

VIDLIN

4.8.109 The village of Vidlin is situated at the head of Vidlin Voe and views from the lower part of the village are channelled north along the Voe, and there would be no visibility of the Proposed Development as shown on the ZTVs on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)**. From the eastern part of the village, which is more elevated, there would be views of proposed turbines which would be partly screened by intervening landform as shown on Viewpoint 23 (**Figure 4.45a-f: Viewpoint 23: Vidlin (EIAR Volume 3b)**).

4.8.110 At Vidlin the magnitude of change would be Moderate/Slight and the residual effect would be **Moderate** and **Not Significant**.

WHALSAY

4.8.111 Whalsay is relatively densely populated with most of the settlement located at Symbister in the southwest of the island and along it north side. The ZTVs shown on **Figure 4.5: Zone of**

Theoretical Visibility (30 km) Tip Height and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate that up to eight proposed turbines would be visible from most of the settled parts of the island.

4.8.112 Viewpoint 24 (**Figures 4.46a-f: Viewpoint 24: Whalsay (EIAR Volume 3b)**) is located in the northeast of the island and is representative of the distance and direction of views from settled areas on the north side of the island. The proposed turbines would be seen beyond the open water of Yell Sound on low hills extending across a horizon with a regular horizontal emphasis. The Proposed Development would contrast with the undeveloped rural and coastal character of views. However, the proposed turbines would be perceived as relatively distant features and a minor focal point in views and would have a limited influence on visual amenity from settled areas on Whalsay.

4.8.113 At Whalsay the magnitude of change would be Slight and the residual effect would be **Moderate/Minor** and **Not Significant**.

ULSTA, COPISTER AND WEST YELL

4.8.114 The ZTVs shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate that up to eight proposed turbines would be visible from most of the settled parts of Ulsta, Copister and West Yell.

4.8.115 Viewpoint 18 (**Figures 4.40a-f: Viewpoint 18: Yell. A968/NCR1 (EIAR Volume 3b)**) shows a view from the A968 at West Yell. It shows that the proposed turbines would be a noticeable new feature occupying a moderate part of the view where existing development has a degree of influence. Settlement at West Yell is situated on west facing slopes and the main outlook is predominantly to the west. However, dwellings are orientated in different directions and there would be varied views from the settlement. Where uninterrupted views of the Proposed Development would be obtained the magnitude of change would be Moderate and the residual effects would be **Moderate** and **Significant**.

4.8.116 At Ulsta the influence of the Proposed Development would be greater. Viewpoint 4 (**Figures 4.26a-f: Viewpoint 4: Yell. Ulsta Shetland Ferry Terminal (EIAR Volume 3b)**) indicates that it would become a notable focal point in views from the Ulsta area. Views from the more elevated settled part of Ulsta to the north would be similar and from Copister the Proposed Development would have less influence due to the mainly southerly outlook from this settled area. At Ulsta and environs the magnitude of change would be Substantial/Moderate and the residual effects would be **Major/Moderate** and **Significant**. At Copister the magnitude of change would be Moderate and the residual effects would be **Major/Moderate** and **Significant**.

BURRAVOE, YELL

4.8.117 The ZTVs shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate that up to eight proposed turbines would be visible from Burravoe and environs and to the west of the village at Houlland and Hamnavoe.

4.8.118 Viewpoint 19 (**Figures 4.41a-f: Viewpoint 19: Yell. B9081, west of Loch of Littlester (EIAR Volume 3b)**) shows that the Proposed Development would be seen above the intervening landform of Ness of Copister. The main outlooks from the settlement are to the south, south west and east. While the Proposed Development would be a notable new addition, it would not be present in the main outlook from this settled area, and it would occupy a relatively small extent of available views.

4.8.119 At Burravoe and environs the magnitude of change would be Moderate/Slight and the residual effect would be **Moderate** and **Not Significant**.

Visual Effects: Roads

4.8.120 Roads are evaluated as being of Medium sensitivity to the Proposed Development.

A968

4.8.121 The ZTVs shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate theoretical visibility of the Proposed Development on short sections of the route between Swinster and Toft. These short sections of visibility would occur where the route passes across more elevated areas of intervening peninsulas and headlands.

4.8.122 There would also be visibility of the Proposed Development where the route passes along the west coast of Yell between Ulsta and Scattlands and West Sandwick.

4.8.123 Viewpoints 4 (**Figures 4.26a-f: Viewpoint 4: Yell. Ulsta Shetland Ferry Terminal**), 8 (**Figures 4.30a-f: Viewpoint 8: Ferry Port - Toft - Revised Location**), 18 (**Figures 4.40a-f: Viewpoint 18: Yell. A968/NCR1**) and 20 (**Figures 4.42a-f: Viewpoint 20: A986/NCR1, South of Firths Voe**) (**EIAR Volume 3b**) are situated along the route of the A968. These viewpoints show that the Proposed Development would be a notable new feature from the route. It would be visible along short sections between Swinister and Toft where it would be a new focal point. Where visible the magnitude of change would range between Moderate in the south near Swinister and Substantial/Moderate at Toft. The residual effect would range between be **Moderate** and **Significant** near Swinister and **Major/Moderate** and **Significant** at Toft.

4.8.124 Southbound travellers on the A968 on Yell would experience sustained views of the Proposed Development between Scattlands in the north and Ulsta in the south. In views from the Scattlands and West Sandwick area the Proposed Development would be seen above intervening foreground landform and would be a minor new focal point. The magnitude of change would be Moderate/Slight and the residual effect would be **Moderate** and **Not Significant**.

4.8.125 South of Scattlands and West Sandwick the Proposed Development would be more noticeable as intervening foreground landform would not provide screening, and the proposed turbines would be seen across the open water of Yell Sound. Viewpoint 18 (**Figures 4.40a-f: Viewpoint 18: Yell. A968/NCR1 (EIAR Volume 3b)**) shows that the proposed turbines would be a noticeable new feature occupying a moderate part of the view where existing development has a degree of influence. The magnitude of change would be Moderate and the residual effect would be **Moderate** and **Significant**.

4.8.126 Midway between West Yell and Ulsta the influence of the Proposed Development would increase, and it would become a more notable feature in views to southbound travellers. The magnitude of change would be Substantial/Moderate and the residual effect would be **Major/Moderate** and **Significant** along a 2 km stretch of the route.

A970

4.8.127 The ZTVs shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate visibility of the Proposed Development from very short sections of the A970 at Burraland (see Viewpoint 15 **Figures 4.37a-f: Viewpoint 15: A970 Layby, Burraland**

(EIAR Volume 3b)), Housetter and North Roe (see Viewpoint 1 **Figures 4.23a-f: Viewpoint 1: Minor Track North Roe (EIAR Volume 3b)**).

4.8.128 Viewpoints 1 (**Figures 4.23a-f: Viewpoint 1: Minor Track North Roe**) and 15 (**Figures 4.37a-f: Viewpoint 15: A970 Layby, Burraland**) (**EIAR Volume 3b**) indicate that the Proposed Development would be a noticeable feature from these very short sections of the route. At these locations the magnitude of change would be Moderate/Slight and the residual effect would be **Moderate** and **Not Significant**.

B9076

4.8.129 The ZTVs shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate visibility of the Proposed Development from a short section of the route to the north of Brae and between Trondavoe and the junction with the A968.

4.8.130 On the short section to the north of Brae the Proposed Development would largely be screened by landform with nacelles of up to four proposed turbines visible and blades only of four. At this location the magnitude of change would be Slight and the residual effect would be **Moderate/Minor** and **Not Significant**.

4.8.131 At Scatsta the Proposed Development would be a notable new feature on the skyline in the direction of travel for motorists heading north east. The proposed turbines would be seen in the context of industrial development at Sella Ness and SVT. Along this part of the route the magnitude of change would be Moderate and the residual effect would be **Moderate** and **Not Significant**.

4.8.132 At Houb of Scatsta and Graven the proposed turbines would be more noticeable occupying a larger proportion of the view although seen in the context of industrial development at SVT. At Graven the magnitude of change would be Substantial/Moderate and the residual effect would be **Major/Moderate** and **Significant**.

4.8.133 To the north and east of Graven, landform would screen the majority of the Proposed Development and the magnitude of change would be Slight and the residual effect would be **Moderate/Minor** and **Not Significant**.

4.8.134 Near the junction with the A968 the Proposed Development would be more noticeable to westbound travellers and would be seen obliquely to the direction of travel. Along this short stretch of the route the magnitude of change would be Substantial/Moderate and the residual effect would be **Major/Moderate** and **Significant**.

B9079

4.8.135 A short section of this route is aligned east-west in the direction of the Proposed Development while most of the route is aligned north east-south west and hence views of the proposed turbines would be oblique. Given the oblique views and interruption by landform in the western section of the route the magnitude of change would be Moderate along most of the route and Substantial/Moderate for a short section at Ollaberry. The residual effect would be **Moderate** and **Not Significant** for most of the route and **Major/Moderate** and **Significant** at Ollaberry.

B9081

4.8.136 The ZTVs shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate visibility of the Proposed Development from a short section of the route to the east

of Ulsta and short sections to the west of Burravoe, passing through Burravoe and to the north of the village.

4.8.137 Viewpoints 4 (**Figures 4.26a-f: Viewpoint 4: Yell. Ulsta Shetland Ferry Terminal (EIAR Volume 3b)**) and 19 (**Figures 4.41a-f: Viewpoint 19: Yell. B9081, west of Loch of Littlester (EIAR Volume 3b)**) show views on or close to the route. Viewpoint 4 (**Figures 4.26a-h: Viewpoint 4: Yell. Ulsta Shetland Ferry Terminal (EIAR Volume 3b)**) shows that the Proposed Development would be a very noticeable new feature at Ulsta and this would be the case approaching Ulsta along the route from the north east. The magnitude of change along this stretch of the route would be Substantial/Moderate and the residual effect would be **Major/Moderate** and **Significant**.

4.8.138 In the Burravoe area the route passes along the coast and passes through the village before heading north. Viewpoint 19 (**Figures 4.41a-f: Viewpoint 19: Yell. B9081, west of Loch of Littlester (EIAR Volume 3b)**) is situated in this area and indicates that the proposed turbines would be a noticeable new feature on the skyline perceived as a fairly simple linear array with limited overlapping turbines.

4.8.139 While the proposed turbines would be a new feature and a minor focal point, they would not fundamentally change the composition of views from the route at Burravoe.

4.8.140 The magnitude of change would be Moderate/Slight and the residual effect would be **Moderate** and **Not Significant**.

Visual Effects: Ferry Routes within 10 km

4.8.141 Ferry routes are assessed as being of High sensitivity.

TOFT-ULSTA

4.8.142 The ZTVs shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate that all eight of the proposed turbines would be visible from the ferry route. Viewpoint 26 (**Figures 4.48a-f: Viewpoint 26: Yell Ferry Route (EIAR Volume 3b)**) shows there would be a considerable degree of change to views in the direction of the Proposed Development from the ferry route. Views north and south along Yell Sound would not be affected. The magnitude of change would be Substantial/Moderate and the residual effect would be **Major/Moderate** and **Significant**.

VIDLIN - OUT SKERRIES

4.8.143 The ZTVs shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate no or limited visibility of the Proposed Development along 6 km of the western part of the route in Vidlin Voe and north of Catta Ness. Within approximately 6 km of Vidlin and 12.5 km from the nearest proposed turbine, the Proposed Development would be visible and largely screened by intervening landform to the south east of the Site. The Proposed Development would be seen low on the horizon occupying a small extent of available views. The magnitude of change would be Slight due to screening by landform and the residual effect would be **Moderate** and **Not Significant**.

4.8.144 Slightly more of the Proposed Development would be visible further east on the route. However, the extent of view influenced by the Proposed Development would be small and the intervening distance means that it would be seen as a minor focal point in expansive views from the ferry. At distances of approximately 15 km or more the magnitude of change would be Slight/Negligible and the residual effect would be **Moderate/Minor** and **Not Significant**.

VIDLIN – SYMBISTER

4.8.145 The ZTVs shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate that the Proposed Development would be visible mainly from a 4 km stretch of the route to the north west of Whalsay. Intervening landform would screen the lower parts of the proposed turbines and mainly blades or blade tips would be seen and the Proposed Development would occupy a small extent of available views.

4.8.146 The magnitude of change would be Slight and the residual effect would be **Moderate/Minor** and **Not Significant**.

SYMBISTER – OUT SKERRIES

4.8.147 The Proposed Development would be visible from approximately 14-15 km of this route which passes along the west coast of Whalsay before heading across open water to the southern islands of Out Skerries where visibility along the route would reduce to none.

4.8.148 The Proposed Development would occupy a small extent of available views from the ferry and would be seen as a minor feature. Where visible, the magnitude of change would be Slight and the residual effect would be **Moderate/Minor** and **Not Significant**. Where the route is aligned north-south at Out Skerries, views become interrupted by intervening islands of the Out Skerries archipelago. Here the magnitude of change would reduce to Slight/Negligible and the residual effect would be **Minor** and **Not Significant**.

Visual Effects: Core Paths and Recreational Routes

4.8.149 Most of the core paths assessed in this SLVIA are associated with settled areas which are assessed above. Where the ZTVs shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate visibility from core paths in these settled areas, the degree of change experienced along these routes would be broadly similar to that experienced at the associated settlement or settled area. However, the nature of change would differ due to the users of core paths being focussed on the landscape and views and the varied terrain across which routes are aligned. Core paths have been evaluated as High sensitivity.

MOSSBANK

4.8.150 There would be variable views from core path CPPDe03 ranging from views of blades only opposite Rayburn Road and Mossbank Church to views of all eight turbines at Mossbank jetty (see Viewpoint 21 **Figures 4.43a-f: Viewpoint 21: Mossbank (EIAR Volume 3b)**). Where blades only would be visible the magnitude of change would be Slight and the residual effect would be **Moderate** and **Not Significant**. At Mossbank jetty and environs the magnitude of change would be Substantial/Moderate and the residual effect would be **Major/Moderate** and **Significant**.

BRAE AND BUSTA

4.8.151 The ZTVs shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate very limited theoretical visibility from core path CPPN11. The magnitude of change would be Negligible and the residual effect would be **Moderate/Minor** and **Not Significant**.

OLLABERRY AND NORTH GLUSS

4.8.152 The ZTVs shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)**

indicate theoretical visibility only from the eastern part of core path CPPN13. Where visible, the Proposed Development would be a very noticeable new focal point in views to the south east. The magnitude of change would be Substantial/Moderate and the residual effect would be **Major/Moderate** and **Significant**.

NORTH ROE

4.8.153 There would be uninterrupted views of the Proposed Development from core path CPPN08 which gives access to Ronas Hill. The lower parts of the core path would be unaffected or there would be limited visibility due to screening by Ness of Queyfirth. At higher altitudes views would open out and all eight turbines of the Proposed Development would be visible and seen in the context of SVT which already influences views. The Proposed Development would appear closer and views are less expansive than those illustrated by Viewpoint 2 (**Figures 4.24a-f: Viewpoint 2: Mid Field Cairn (WLA) (EIAR Volume 3b)**). The magnitude of change would be Moderate and the residual effect would be **Major/Moderate** and **Significant** on core path CPPN08.

4.8.154 There would be visibility of the Proposed Development from short sections of core path CPPN04 on Fethaland peninsula. Viewpoint 1 (**Figures 4.23a-f: Viewpoint 1: Minor Track North Roe (EIAR Volume 3b)**) indicate typical views from the south of CPPN04. Where core path CPPN04 crosses higher ground at Lanchestoo (130 m AOD) and on the east side of the peninsula, views would be more open than those shown on the Viewpoint. The Proposed Development would be seen as a minor feature in wide panoramic views and would occupy a small extent of views which are influenced to a degree by SVT. The magnitude of change would be Moderate/Slight and the residual effect would be **Moderate** and **Not Significant** on core path CPPN04.

4.8.155 The ZTVs shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate very limited theoretical visibility from core path CPPN09. The magnitude of change would be Negligible and the residual effect would be **Moderate/Minor** and **Not Significant**.

LUNNA PENINSULA

4.8.156 The ZTVs shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate theoretical visibility mainly from the northern side of the peninsula and from Ward of Outrabister (90 m AOD). There would be visibility of all eight proposed turbines from elevated parts of core path CPPNL04 and from the section along the coast (see Viewpoint 5 **Figures 4.27a-f: Viewpoint 5: Parking at Outrabister, Lunna Ness (EIAR Volume 3b)**). The proposed turbines would be separated from the viewpoint by an intervening expanse of sea but would appear large in scale compared with existing development and would form a noticeable focal point.

4.8.157 The magnitude of change would be Moderate and the residual effect would be **Major/Moderate** and **Significant**.

VIDLIN

4.8.158 The ZTVs shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate theoretical visibility only of blades or blade tips of the proposed turbines from the eastern and southern parts of core path CPPNL01. Where visible the proposed turbines would occupy a small part of available views and would have a limited influence on visual amenity.

4.8.159 The magnitude of change would be Slight/Negligible and the residual effect would be **Moderate/Minor** and **Not Significant**.

WHALSAY

4.8.160 There would be visibility of the proposed turbines from core paths CPPW01, CPPW03 and CPPW04 at distances of between 18 and 20 km from the nearest proposed turbine. Viewpoint 24 (**Figures 4.46a-f: Viewpoint 24: Whalsay (EIAR Volume 3b)**) is situated 19.67 km from the nearest proposed turbine and shows a typical view from Whalsay. This indicates that the proposed turbines would be perceived as a minor focal point in views and would have a limited influence on the composition of views. Views from the three core paths on Whalsay would be similar in nature to that shown on Viewpoint 24.

4.8.161 The magnitude of change would be Slight/Negligible and the residual effect would be **Moderate/Minor** and **Not Significant** for core paths CPPW01, CPPW03 and CPPW04.

BURRAVOE, YELL

4.8.162 The ZTVs shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)** indicate that the Proposed Development would be visible from the eastern part of core path CPPY02. Ness of Copister would partly screen the Proposed Development and it would be less noticeable than the more open view shown on Viewpoint 19 (**Figures 4.41a-f: Viewpoint 19: Yell. B9081, west of Loch of Littlester (EIAR Volume 3b)**) which is situated 0.3 km to the west of the core path. The proposed turbines would be a new feature and a minor focal point occupying a small part of available views.

4.8.163 The magnitude of change would be Moderate/Slight and the residual effect would be **Moderate** and **Not Significant** for core path CPPY02.

ESHANESS AND HILLSWICK (SHETLAND NSA)

4.8.164 Mainly blades or blade tips would be visible from core paths CPPN06 and CPPN02 at distances of approximately 12.5 to 20 km from short sections of each route. Given the limited visibility of the Proposed Development, short sections of route affected and the intervening distance, the magnitude of change would be Slight/Negligible and the residual effect would be **Moderate/Minor** and **Not Significant** for core paths CPPN06 and CPPN02.

NATIONAL CYCLE NETWORK ROUTE 1

4.8.165 A970 between Voe and Brae. There would be no visibility of the Proposed Development on this section of the route.

4.8.166 B9076 between Brae and Mossbank. Visibility of the Proposed Development would be the same as that described for the B9076 in paragraphs 4.8.61 to 4.8.66. Cyclists using the route are evaluated as being of High sensitivity as they would be focused on the landscape and views. The magnitude of change and residual effects would be as follows:

- North of Brae: Magnitude of change would be Slight and residual effect would be **Moderate** and **Not Significant**
- Scatsta: Magnitude of change would be Moderate and residual effect would be **Major/Moderate** and **Significant**
- Houb of Scatsta and Graven: Magnitude of change would be Substantial/Moderate and residual effect would be **Major/Moderate** and **Significant**
- North and east of Graven: Magnitude of change would be Slight and residual effect would be **Moderate** and **Not Significant**

- A968 junction: Magnitude of change would be Substantial/Moderate and residual effect would be **Major/Moderate** and **Significant**.

Visual Effects: Viewpoints

4.8.167 A detailed assessment of effects on all 26 viewpoints is described in **Technical Appendix 4.4: Viewpoint Assessment (EIAR Volume 4)**. **Table 4.6** below provides a summary of significant effects which are predicted on 15 viewpoints. All the viewpoints summarised in **Table 4.6** are within 10 km of the nearest proposed turbine. Effects would reduce to **Moderate** and **Not Significant** or lower for viewpoints at distances greater than 10 km.

Table 4.6: Summary of Significant Effects on Viewpoints

VP No.	Viewpoint Name	Distance and Direction from the Proposed Development	Sensitivity of Visual Receptors at Viewpoint	Magnitude of Change	Residual Effect on Visual Amenity
3	Ollaberry, St Magnus Church	5.3 km Northwest	High Settlement and walkers	Substantial/Moderate	**Major/Moderate** and **Significant**
4	Yell, Ulsta Ferry Terminal	4.73 km North east	High Visitors	Substantial/Moderate	**Major/Moderate** and **Significant**
5	Parking at Outrabister, Lunna Ness	9.08 km South east	High Settlement and walkers	Moderate	**Major/Moderate** and **Significant**
7	Brough	1.48 km East	High Settlement	Substantial/Moderate	**Major/Moderate** and **Significant**
8	Ferry Port - Toft - Revised Location	1.26 km East	High Settlement and Visitors	Substantial/Moderate	**Major** and **Significant**
9	Vantage Point by Houb of Scatsta	4.03 km South west	Medium Road users	Substantial/Moderate	**Major/Moderate** and **Significant**
10	Cairn at Hill of Graven	4.01 km South south east	High Hillwalkers	Substantial/Moderate	**Moderate/Major** and **Significant**
11	Minor Road between Southlee and Graven	3.71 km South	Medium Road users	Moderate	**Moderate** and **Significant**
12	Crooksetter Hill,chambered cairn near NW summit of SM3608	0.61 km South	High Hillwalkers	Substantial	**Major** and **Significant** affecting part of available views.
13	North Gluss	6.26 km West	High Settlement	Moderate	**Major/Moderate**
18	Yell. A968/NCR1	7.27 km East	Medium Motorists	Moderate	**Moderate** and **Significant** affecting only part of the available views from the A968

Table 4.6: Summary of Significant Effects on Viewpoints

VP No.	Viewpoint Name	Distance and Direction from the Proposed Development	Sensitivity of Visual Receptors at Viewpoint	Magnitude of Change	Residual Effect on Visual Amenity
20	A986/NCR1, South of Firths Voe	4.28 km South	Medium Motorists	Moderate	**Moderate** and **Significant**
21	Mossbank	2.93 km East	High Settlement	Substantial/Moderate	**Major/Moderate** and **Significant**
22	Ollaberry	6.24 km West	High Settlement	Moderate	**Major/Moderate** and **Significant**
25	Toft	1.05 km East	High Settlement	Substantial	**Major** and **Significant**
26	Yell Ferry Route	3.37 km East	High/ Medium Ferry passengers	Substantial/Moderate	**Major/Moderate** and **Significant**

Landscape Effects: Landscape Designations

SHETLAND NSA

4.8.168 **Technical Appendix 4.6: Shetland National Scenic Area Special Landscape Qualities Assessment (EIAR Volume 4)** describes an assessment of the effects of the Proposed Development on the SLQs of Shetland NSA. The assessment was undertaken in accordance with NatureScot guidance and involved the following steps:

- Step 1 – review and describe the Proposed Development
- Step 2 – identify the SLQs that may be affected by the Proposed Development
- Step 3 – assessment of effects on SLQs and design objectives
- Step 4 – summary of significant effects on SLQs.

SUMMARY OF EFFECTS

4.8.169 Step 2 of the assessment indicated that significant effects on SLQ4 would be unlikely and this SLQ was not considered for further assessment in Step 3.

4.8.170 *SLQ2 Coastal views both close and distant* is assessed as being of High sensitivity to the Proposed Development.

4.8.171 The Proposed Development would affect the way this SLQ is experienced and perceived mainly from the eastern part of the North Roe NSA area. From this part of the North Roe NSA Area the magnitude of change is assessed as Moderate/Slight and the residual effect on the SLQ would be **Moderate** and **Significant**.

4.8.172 In the Muckle Roe NSA Area and the Eshaness NSA Area the influence of the Proposed Development would be very limited, and the magnitude of change is assessed as Negligible for both Areas. The residual effect on the SLQs would be **Minor** and **Not Significant** in both of these Areas.

4.8.173 *SLQ3 Coastal settlement and fertility within a large hinterland of unsettled moorland and coast* is assessed as being of High/Medium sensitivity to the Proposed Development.

4.8.174 The Proposed Development would affect the way this SLQ is perceived and experienced mainly in the eastern part of the North Roe NSA Area. From this part of the North Roe NSA Area the magnitude of change is assessed as Slight and the residual effect on the SLQ would be **Moderate** and **Not Significant**.

4.8.175 In the Muckle Roe NSA Area and the Eshaness NSA Area the influence of the Proposed Development would be very limited and the magnitude of change is assessed as Negligible for both Areas. The residual effect on the SLQ would be **Minor** and **Not Significant** in both of these Areas.

4.8.176 *SLQ6 A sense of remoteness, solitude and tranquillity* is assessed as being of High sensitivity to the Proposed Development.

4.8.177 The Proposed Development would affect the way this SLQ is perceived and experienced mainly in the eastern part of the North Roe NSA Area. From this part of the North Roe NSA Area the magnitude of change is assessed as Slight and the residual effect on the SLQ would be **Moderate** and **Not Significant**.

4.8.178 In the Muckle Roe NSA Area and the Eshaness NSA Area the influence of the Proposed Development would be very limited and the magnitude of change is assessed as Negligible for both Areas. The residual effect on the SLQ would be **Minor** and **Not Significant** in both of these Areas.

SHETLAND NSA ASSESSMENT CONCLUSIONS

4.8.179 Three of the seven NSA Areas would potentially be affected by the Proposed Development. Four of the seven areas would not be affected due to no or very limited visibility and long intervening distance to the Proposed Development.

4.8.180 There would be only three of the nine SLQs potentially affected by the Proposed Development within the three NSA Areas. There would be the potential for a **Moderate** and **Significant** effect on one aspect of SLQ2 Coastal views both close and distant, in only the eastern part of the North Roe Area. The effects on SLQ2 would be localised to a small part of the North Roe Area with the remaining central and western part unaffected. Effects on SLQ3 and SLQ6 would be **Not Significant** in North Roe Area.

4.8.181 Residual effects on SLQ at Muckle Roe Area and Eshaness Area would be **Not Significant**.

4.8.182 Given the residual effects on SLQ described above it is concluded that the objectives of designation and overall integrity of Shetland NSA would not be compromised.

LLA 12 LUNNA NESS AND LUNNING

4.8.183 **Figure 4.10: Landscape Designations (NSA, LLA) and Wild Land Areas with Tip Height Bare Ground ZTV (EIAR Volume 3a)** shows that LLA 12 is to the south east of the Proposed Development and extends from the Lunna Holm, an island off the north east tip of Lunna peninsula to Hamera Head in the south at Dury Voe. LLA 12 is evaluated as being of High/Medium sensitivity overall as described in **Technical Appendix 4.5 Designations and Classifications Sensitivity Assessment(EIAR Volume 4)**. The Proposed Development would affect mainly the following key characteristics of LLA 12:

- "Long, narrow and remote headland of Lunna Ness; and
- Rugged moorland hills around Lunning."

4.8.184 The Proposed Development also has the potential to affect *"panoramic views of surrounding islands and sounds."*

4.8.185 The ZTV shown on **Figure 4.10: Landscape Designations (NSA, LLA) and Wild Land Areas with Tip Height Bare Ground ZTV (EIAR Volume 3a)** shows there would be visibility of the Proposed Development from Lunna peninsula and from the western part of the hills around Lunning. Viewpoints 5 (**Figure 4.27a-f: Viewpoint 5: Parking at Outrabister, Lunna Ness**), 17 (**Figure 4.39a-f: Viewpoint 17: Minor road - Newhouse, Lunna Ness**) and 23 (**Figure 4.45a-f: Viewpoint 23: Vidlin**) (**EIAR Volume 3b**) are located in LLA 12.

4.8.186 The Proposed Development would affect the way in which the 'headland of Lunna Ness' is experienced by introducing development into views from the peninsula as shown on Viewpoints 5 (**Figures 4.27a-f: Viewpoint 5: Parking at Outrabister, Lunna Ness (EIAR Volume 3b)**) and 17 (**Figures 4.39a-f: Viewpoint 17: Minor road - Newhouse, Lunna Ness (EIAR Volume 3b)**). The proposed turbines would be perceived as relatively distant and separated from Lunna Ness by an intervening expanse of sea. The experience of physical remoteness may be slightly diminished as a result of views of the proposed turbines. However, this part of the LLA takes time to reach travelling along a narrow, winding single track roads with increasingly exposed and expansive views of the sea particularly from elevated parts of the peninsula.

4.8.187 The Proposed Development would be visible from the hills around Lunning where it would be seen partly screened by intervening landform. The introduction of the Proposed Development into views from these hills would compete to a degree with the small scale of the hills and the land cover of heather moorland and small lochs.

4.8.188 The Proposed Development would be visible in part of the available panoramic views of surrounding islands and sounds and would not affect widely available views in other directions.

4.8.189 Given the key characteristics of LLA 12 and accounting for the analysis of effects reported for underlying LCT and viewpoints within LLA 12 the magnitude of change is considered to be Moderate/Slight and the residual effect would be **Moderate** and **Not Significant** on LLA 12.

4.8.190 The Proposed Development would not have Significant adverse effects on the qualities for which LLA 12 has been identified. There would not be Significant adverse effects on the integrity of LLA 12 Lunna Ness and Lunning.

LLA 2 NIBON AND MANGASTER

4.8.191 **Figure 4.10: Landscape Designations (NSA, LLA) and Wild Land Areas with Tip Height Bare Ground ZTV (EIAR Volume 3a)** shows that LLA 2 is to the west of the Proposed Development and extends from Hamar Voe in the north to Turvalds Head in the south. LLA 2 is evaluated as being of High/Medium sensitivity overall as described in **Technical Appendix 4.5: Local Landscape Designations Sensitivity Assessment (EIAR Volume 4)**. The Proposed Development would affect mainly the following key characteristic of LLA 2: "*Rugged landscape of rocky coastal hills interspersed with numerous lochans.*"

4.8.192 The Proposed Development also has the potential to affect the "*sense of remoteness and wildness.*" The focus of views is out to St Magnus Bay to the west and along the intricate coastline of voes and headlands.

4.8.193 The ZTV shown on **Figure 4.10: Landscape Designations (NSA, LLA) and Wild Land Areas with Tip Height Bare Ground ZTV (EIAR Volume 3a)** shows there would be very limited visibility of the Proposed Development from the LLA. It would be visible mainly from elevated areas in the rocky hills and it would not be seen from the coastline or along the voes

that extend into St Magnus Bay. The exception is a small patch of visibility on the north side of Hamar Voe.

4.8.194 The Proposed Development would affect the way in which the 'rocky coastal hills' are experienced by introducing development into views east from the hills. Views in the direction of the Proposed Development are already influenced by SVT. The Proposed Development would introduce a new type of development into views but would not be a dominant influence on the experience of the rocky coastal hills which is focused on views west, north and south.

4.8.195 The Proposed Development would affect the sense of remoteness and wildness to a degree by introducing further development into views. However, the relatively isolated position of the LLA and its focus on the rugged physical coastal features mean that the Proposed Development would have a limited influence on this aspect of the LLA.

4.8.196 Given the key characteristics of LLA 2 and accounting for the analysis of effects reported for underlying LCT, the magnitude of change is considered to be Moderate/Slight and the residual effect would be **Moderate** and **Not Significant** on LLA 2.

4.8.197 The Proposed Development would not have Significant adverse effects on the qualities for which LLA 2 has been identified. There would not be Significant adverse effects on the integrity of LLA 2 Nibon and Mangaster.

LLA 1 RONAS HILL

4.8.198 **Figure 4.10: Landscape Designations (NSA, LLA) and Wild Land Areas with Tip Height Bare Ground ZTV (EIAR Volume 3a)** shows that LLA 1 is to the north west of the Proposed Development and coincides with the north and south sides of Ronas Voe and Ronas Hill including a hinterland of lower knolly terrain with small lochs to the north and lower hills descending to the A970 to the east. LLA 1 is evaluated as being of High/Medium sensitivity overall as described in **Technical Appendix 4.5: Designations and Classifications Sensitivity Assessment (EIAR Volume 4)**. The Proposed Development would affect mainly the following key characteristics of LLA 2:

- "A Shetland landmark, the highest point of the islands
- Largely empty, uninhabited hills and moors."

4.8.199 The Proposed Development also has the potential to affect the "*wide views across the whole of Shetland.*" There are panoramic views all around from Ronas Hill while Ronas Voe has an enclosed character and is "*deep and broad, a dramatic fjord-like inlet with tall cliffs of pink granite and green grass on its northern shore*."

4.8.200 The ZTV shown on **Figure 4.10: Landscape Designations (NSA, LLA) and Wild Land Areas with Tip Height Bare Ground ZTV (EIAR Volume 3a)** shows the Proposed Development from the LLA would be visible mainly from the east side of Ronas Hill and from a small area on the south side of Ronas Voe.

4.8.201 The Proposed Development would affect the perceived empty and uninhabited character of the LLA. Views in the direction of the Proposed Development are already influenced by SVT. The Proposed Development would introduce a new type of development into views but would not be a dominant influence. Viewpoint 2 (**Figure 4.24a-f: Viewpoint 2: Mid Field Cairn (WLA) (EIAR Volume 3b)**) shows that views from Ronas Hill would look down on the Proposed Development which would reduce the perceived size of the proposed turbines and it would be seen in a wider context of existing development and large scale views.

4.8.202 The Proposed Development would affect views in one direction. It would be a noticeable new feature but would not be a competing focus in wider views. The Proposed Development would

occupy a small proportion of available views from Ronas Hill and from the south side of Ronas Voe mainly blade tips would be visible as indicated by a comparison of the tip height ZTV shown on **Figure 4.10: Landscape Designations (NSA, LLA) and Wild Land Areas with Tip Height Bare Ground ZTV (EIAR Volume 3a)** and the hub height ZTV shown on **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)**.

4.8.203 The characteristic of Ronas Hill as a landmark feature is experienced mainly from outwith the LLA. A landmark is by definition "*an object or feature that is easily seen and recognised from a distance…*"[6]. The Proposed Development would be visible in front of Ronas Hill in distant views from the south east (see Viewpoint 5 (**Figure 4.27a-f: Viewpoint 5: Parking at Outrabister, Lunna Ness (EIAR Volume 3b)**) and Viewpoint 24 (**Figure 4.46a-f: Viewpoint 24: Whalsay (EIAR Volume 3b)**). However, from many other areas the Proposed Development would not be visible in front of Ronas Hill or would not be visible at all. The influence of the Proposed Development on the experience of Ronas Hill as a landmark feature would be very limited.

4.8.204 Given the key characteristics of LLA 1 and accounting for the analysis of effects reported for underlying LCT and viewpoints within LLA 1, the magnitude of change is considered to be Moderate/Slight and the residual effect would be **Moderate** and **Not Significant** on LLA 1.

4.8.205 The Proposed Development would not have Significant adverse effects on the qualities for which LLA 1 has been identified. There would not be Significant adverse effects on the integrity of LLA 1 Ronas Hill.

LLA17 WEST SANDWICK TO GLOUP HOLM

4.8.206 **Figure 4.10: Landscape Designations (NSA, LLA) and Wild Land Areas with Tip Height Bare Ground ZTV (EIAR Volume 3a)** shows that LLA 17 is to the north east of the Proposed Development and extends along the coast from Ness of West Sandwick in the south to Bluemull Sound in the north east. LLA 17 is evaluated as being of High/Medium sensitivity overall as described in **Technical Appendix 4.4: Viewpoint Assessment (EIAR Volume 4)**. The Proposed Development would affect mainly the following key characteristics of LLA 2:

- "Highly isolated, long stretches of coastline increasing in exposure to the north
- Impressive wide views of great depth across Yell Sound to the rocky hills of Northmavine."

4.8.207 The Proposed Development also has the potential to affect the "*views along the sound take in an attractive assemblage of water and layers of low, interlocking coastal hills rising to the rounded Ronas Hill behind.*"

4.8.208 The ZTV shown on **Figure 4.10: Landscape Designations (NSA, LLA) and Wild Land Areas with Tip Height Bare Ground ZTV (EIAR Volume 3a)** shows there would be very limited visibility of the Proposed Development from areas of the LLA north of Whale Firth. It would be visible mainly from the area to the south of Whale Firth with visibility mostly in the south of that area.

4.8.209 The Proposed Development would be perceived as a distant feature where visible from the isolated and exposed northern parts of the LLA and would have a limited influence on this characteristic.

4.8.210 The Proposed Development would affect views down Yell Sound but would not interrupt views to the rocky hills of Northmavine on the west side of Yell Sound.

[6] Oxford University Press. (1998) The New Oxford Dictionary of English.

4.8.211 The Proposed Development would be a noticeable new feature in views along Yell Sound from the LLA. It would be seen amongst low lying coastal hills set back from intervening islands. The Proposed Development would affect a part of available views along Yell Sound from the LLA and although a noticeable new feature the overall change to the composition of views along Yell Sound from the LLA would be small.

4.8.212 Given the key characteristics of LLA 17 and accounting for the analysis of effects reported for underlying LCT, the magnitude of change is considered to be Slight and the residual effect would be **Moderate/Minor** and **Not Significant** on LLA 17.

4.8.213 The Proposed Development would not have Significant adverse effects on the qualities for which LLA 17 has been identified. There would not be Significant adverse effects on the integrity of LLA 17 West Sandwick to Gloup Holm.

Residual Cumulative Construction Effects

4.8.214 Whilst there is potential for cumulative effects associated with the construction of the Proposed Development and other wind energy developments in the Study Area, there is no certainty as to the nature of construction operations or timescales for the cumulative developments identified in **Table 4.3**.

4.8.215 There is very limited potential for cumulative construction effects in the Study Area due to the localised effects of construction of the Proposed Development and the nearest consented wind farm, Beaw Field, being situated 10.6 km to the north east. Other consented wind farm development is situated over 24 km from the Proposed Development.

Residual Cumulative Operational Effects

4.8.216 Potential cumulative effects would arise in relation to the operation of the Proposed Development with other existing, consented and in-planning wind farm developments in the Study Area. Two scenarios have been assessed in addition to the Site 'Solus' in its baseline context (that includes existing, operational wind farms). The operational baseline and the potential future baseline including consented, in-planning and in-scoping wind farm developments are listed in **Table 4.3** and shown on **Figure 4.14: Cumulative Location Plan (EIAR Volume 3a)**.

4.8.217 The following assessment describes the in-addition residual cumulative effects on LCTs, landscape designations and classifications, and visual amenity. The cumulative (Solus in baseline (Scenario 1), and Scenarios 2 and 3) residual effects on landscape character and visual amenity at the 26 viewpoint locations are reported in this section. The focus of the assessment is on in-addition cumulative effects and notes any significant in-combination cumulative effects. In-addition effects are the incremental changes associated with the addition of the Proposed Development to the cumulative baseline Scenario assessed.

4.8.218 Where the magnitude of change assessed for the Proposed Development in cumulative Scenario 1 i.e. the Proposed Development in addition to operational wind farms, is Negligible or Slight/Negligible, the in-addition cumulative effects have not been assessed, as any potentially significant cumulative effects would result from the influence of cumulative development and not the addition of the Proposed Development. The degree of cumulative change depends upon the influence of the cumulative development or developments to which the Proposed Development would add.

4.8.219 The cumulative assessment considers effects for each receptor assessed under each scenario, highlighting the main cumulative wind farms with which the Proposed Development would interact to generate cumulative effects.

4.8.220 **Figure 4.14: Cumulative Location Plan (EIAR Volume 3a)** shows the location of cumulative wind farm development in the Study Area. The operational Viking Wind Farm is a very notable presence 14.9 km to the south of the Proposed Development and has a considerable influence in the area around it. Most of the cumulative development is to the south of Viking Wind Farm. The Solus (Scenario 1) assessment of effects finds that significant effects of the Proposed Development would occur mainly within 10 km of the nearest proposed turbine.

4.8.221 The pattern of visibility shown on the ZTVs on **Figures 4.3 to 4.6 (EIAR Volume 3a)** shows that visibility of the Proposed Development would occur mainly within 10 km. Any instances of combined or successive visibility of the Proposed Development with cumulative wind farms to the south of Viking would be influenced mainly by Viking Wind Farm or nearby cumulative wind farms and not the Proposed Development. The cumulative assessment has therefore focused on cumulative effects arising from the addition of the Proposed Development to Beaw Field, Energy Isles, Wethersta and SVT cumulative developments as these are likely to have more of an influence in the northern part of the study area than sites south of Viking Wind Farm.

Cumulative Scenario 2 (Consented)

4.8.222 The focus in this Scenario is the likely significant cumulative effects arising from the addition of the Proposed Development to Beaw Field and Energy Isles as these are situated away from the influence of Viking Wind Farm and in the northern part of the study area.

LANDSCAPE CHARACTER

4.8.223 The Solus assessment finds that the Proposed Development would result in Significant effects on the host LCT 350 Peatland and Moorland. Significant effects would occur on the host unit, the Calbeck Ness unit to the west and the Gluss Ayre unit to the west. Significant effects would occur within 5 km of the Proposed Development.

4.8.224 In Scenario 1 the Proposed Development would result in significant effects on the Toft, Mossbank (northern most part only) and Ulsta and West Yell (southern part only) units of LCT 354 Farmed and Settled Voes and Sounds. It would also result in significant effects on LCT 356 Small Uninhabited Islands and the northern part of a unit of LCT 349 Major Uplands. Significant effects on these LCTs would occur within 5 km of the Proposed Development. In Scenario 1 significant effects on landscape character beyond 5 km are limited to a unit of LCT 355 Coastal Edge in the south of North Roe outwith Shetland NSA.

4.8.225 Beaw Field would be situated in the south east of a very large unit of LCT 350 Peatland and Moorland on Yell. This unit is 3.5 km from the host unit at its closest point with turbines of Beaw Field being 8.5 km from the host unit of the Proposed Development. The host unit is separated from the unit in which Beaw Field is located by Yell Sound and is seen as a distinctly separate area. The two developments would be seen in similar landscapes although they would have different areas of influence.

4.8.226 Energy Isles would be situated in a separate very large unit of LCT 350 in the north of Yell. The operational Garth Wind Farm is situated in the north eastern part of this unit. Energy Isles would mainly influence the unit of LCT 350 in which it would be located and would have a limited influence on the LCT unit to the south in which Beaw Field is located. Energy Isles would not influence the host unit of the Proposed Development but may be discernible as a distant feature in a distinctly separate area where landscape character would not be legible.

4.8.227 The effects arising from the addition of the Proposed Development to the consented scenario of Beaw Field and Energy Isles would remain **Major/Moderate** and **Significant** at the host

unit. For units of LCT 350 beyond the host unit the effects would also remain the same as those assessed for Scenario 1. This would result in up to a **Moderate** and **Significant** residual effect within 5 km of the Proposed Development and up to **Moderate** and **Not Significant** effects within 5-10 km of the Proposed Development reducing to **Moderate/Slight** and **Not Significant** beyond 10 km.

4.8.228 LCT 354 Farmed and Settled Voes and Sounds occurs at the edges of LCT 350 and there are units of LCT 354 located between the Proposed Development and Beaw Field. The Solus assessment in Scenario 1 assessed significant effects on units of LCT 350 within 5 km of the Proposed Development. There would be no direct or indirect cumulative effect in most of the Ulsta and West Yell LCT unit as only the Proposed Development would be visible and neither Beaw Field or Energy Isles would be seen as shown on **Figure 4.19: Cumulative ZTV – Neshion with Beaw Field (Consented)** and **Figure 4.20: Cumulative ZTV – Neshion with Energy Isles (Consented) (EIAR Volume 3a)**. In other units the effects arising from the addition of the Proposed Development to the consented scenario of Beaw Field and Energy Isles would remain at **Moderate** and **Significant** at most in the Toft and Mossbank units.

4.8.229 The Solus assessment in Scenario 1 identified significant effects on LCT 356 Small Uninhabited Islands relating to the characteristic of remoteness and wildness which would be affected by the presence of the Proposed Development in views to the LCT. Beaw Field would also be visible in views to LCT 356 and there would be combined visibility in views from the west with successive views from Toft-Ulsta ferry route. Energy Isles would not influence LCT 356. The effects arising from the addition of the Proposed Development to the consented scenario of Beaw Field and Energy Isles would remain at **Moderate** and **Significant**.

4.8.230 Significant effects are identified in the Solus assessment in the northern part of a single unit of LCT 349 Major Uplands. Beaw Field would also be visible from this unit but would have a very limited influence. It would also have a very limited influence on the Ronas Hill unit to the north as would Energy Isles which would be seen as a distant feature. The Proposed Development would therefore be the main influence and the effects arising from the addition of the Proposed Development to the consented scenario of Beaw Field and Energy Isles would remain at **Major/Moderate** and **Significant** in the northern part of a single unit of this LCT.

4.8.231 The Solus assessment identified significant residual effects on one unit of LCT 355 Coastal Edge in the south of North Roe. The ZTV indicates that Beaw Field and Energy Isles would also be visible from this unit and have the potential to affect coastal views. Energy Isles would be perceived as a distant feature inland and Beaw Field would also be seen across intervening landform of South Yell. The Proposed Development would therefore be the main influence and the effects arising from the addition of the Proposed Development to the consented scenario of Beaw Field and Energy Isles would remain at **Moderate** and **Significant** in the northern part of a single unit of this LCT.

COASTAL CHARACTER

4.8.232 The Solus assessment found that the Proposed Development would result in Significant effects on CCA 27 Yell Sound and CCA 3 Lunna Ness.

4.8.233 Energy Isles and Beaw Field would influence the northern part of CCA 27 to a degree (see Viewpoint 1 (**Figure 4.23a-f: Viewpoint 1: Minor Track North Roe (EIAR Volume 3b)**) and there would be limited cumulative interaction with the Proposed Development in that part of the CCA due to limited visibility and distance between the three schemes. Cumulative effects would be **Moderate/Minor** and **Not Significant** in the northern part of the CCA.

4.8.234 In the southern part of the CCA the more notable cumulative interaction would be with Beaw Field. The Proposed Development would add to the influence of Beaw Field mainly in the southeast of CCA 27 at Yell. However, overall the Proposed Development would be the main influence and the effects arising from the addition of the Proposed Development to the consented scenario of Beaw Field and Energy Isles would remain at **Major/Moderate** and **Significant** within 2-3 km, **Moderate** and **Significant** within 3-6 km and **Moderate** and **Not Significant** within 6-10 km.

4.8.235 The Solus assessment identified **Significant** effects on CCA 3 Lunna Ness within 5 km of the Proposed Development mainly at Burra Ness. **Moderate** and **Not Significant** effects were identified at distances of 5-10 km from the Proposed Development. The ZTV shown on **Figure 4.20: Cumulative ZTV – Neshion with Energy Isles (Consented) (EIAR Volume 3a)** indicates that Energy Isles would not be visible from CCA 3. The main cumulative interaction would therefore be with Beaw Field. The two schemes would be seen as distinctly separate developments separated by a wide expanse of sea. There would be combined and successive views of the two schemes from CCA 3 but the separation distance between the two developments means that the main influence of the Proposed Development would be localised to the area around the proposed turbines. The effects arising from the addition of the Proposed Development to the consented scenario of Beaw Field and Energy Isles would remain at **Moderate** and **Significant** within 5 km, **Moderate** and **Not Significant** within 5-10 km, and **Moderate/Minor** and **Not Significant** at most beyond 10 km.

4.8.236 Given that no significant effects were identified in the Solus assessment for CCA 26 and given the limited potential for cumulative interaction it is considered there would not be significant cumulative effects on CCA 26 Sullom Voe in Scenario 2.

VISUAL EFFECTS

SETTLEMENTS AND SETTLED AREAS

4.8.237 The Solus assessment identified that there would be significant visual effects on some settlements and settled areas within 10 km of the Proposed Development. Given the pattern of visibility shown on the ZTVs (see **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)**) the scattered settlement pattern, nature of available views and/or influence of existing development, significant effects beyond 10 km would not be experienced.

4.8.238 The Proposed Development would be the main influence on settlements within 5 km of the Proposed Development. At Ulsta on Yell both the Proposed Development and Beaw Field would be within 5 km of the settlement and both would be visible. The main outlooks from Ulsta are to the south and south west. Beaw Field would be visible in successive views with the Proposed Development being the main influence. There would be no perception of encirclement by development as the two schemes are separated from each other by a wide expanse of sea and are far enough from Ulsta not to appear dominant. The effects arising from the addition of the Proposed Development to the consented scenario of Beaw Field and Energy Isles would remain at **Major/Moderate** and **Significant** at most for settlements within 5 km.

4.8.239 In the Scatsta, Graven and Garth area there would be no visibility of Energy Isles or Beaw Field from settled areas as shown on **Figure 4.5: Zone of Theoretical Visibility (30 km) Tip Height** and **Figure 4.6: Zone of Theoretical Visibility (30 km) Hub Height (EIAR Volume 3a)**. The cumulative effect would therefore be none at Scatsta, Graven and Garth.

4.8.240 The Proposed Development would be the main influence in Scenario 2 for settlements and settled areas within 5-10 km to the north west through to south and south east. Energy Isles would have a very limited influence, and the main cumulative interaction would be with Beaw

Field. The Proposed Development would add to the amount of wind farm development visible but the distance to Beaw Field means that any notable additional effects, assuming the presence of Beaw Field in the baseline, would be limited. The effects arising from the addition of the Proposed Development to the consented scenario of Beaw Field and Energy Isles would remain at **Major/Moderate** and **Significant** at most for settlements within 5-10 km.

4.8.241 Beyond 10 km effects would remain at **Moderate** and **Not Significant** at most and mainly **Moderate/Minor**.

ROADS AND FERRY ROUTES

4.8.242 There would be sequential effects on the A970 which passes through Viking Wind Farm in the south of the Study Area. North of Viking Wind Farm, views of the Proposed Development are restricted by landform and it would only be visible from very short sections of the route. Beaw Field and Energy Isles would also be visible but seen as distant features and although there would be a degree of sequential change the level of cumulative interaction is limited.

4.8.243 There would be sequential effects on the A968 which passes close to the Proposed Development at Toft and within 5 km of Beaw Field and Energy Isles. The Proposed Development would be a notable addition and have the main influence at Toft and at Ulsta and on the west side of Yell. There would be limited cumulative interactions with Energy Isles due to the distance between the two schemes and the lack of combined visibility along the A968 on Yell.

4.8.244 There would be notable sequential effects on the B9081. On Yell, Beaw Field would be the main influence and the Proposed Development would not be visible for most of the route on the east side of the island. West of Burravoe the Proposed Development would be more noticeable and the main influence travelling west to Ulsta.

4.8.245 From other routes the Proposed Development would be the main influence.

4.8.246 Overall the effects arising from the addition of the Proposed Development to the consented scenario of Beaw Field and Energy Isles would remain as assessed in Scenario 1 except to the west of Burravoe where the magnitude of change would increase from Moderate/Slight to Moderate and the residual effect would be **Moderate** and **Significant** due to the increased influence of wind farm development on the route.

4.8.247 From the ferry routes assessed in this SLVIA, Energy Isles would not be visible as shown on the ZTV on **Figure 4.20: Cumulative ZTV – Neshion with Energy Isles (Consented) (EIAR Volume 3a)**. The Solus assessment in Scenario 1 finds significant effects only on the Toft-Ulsta ferry route. Viewpoint 26 (**Figure 4.48a-f: Viewpoint 26: Yell Ferry Route (EIAR Volume 3b)**) shows that both the Proposed Development and Beaw Field would be seen. The Proposed Development would have more influence on the route due to it being seen directly across Yell Sound with limited landform screening. However, the overall the effects on the route arising from the addition of the Proposed Development to the consented scenario of Beaw Field and Energy Isles would remain as assessed in Scenario 1.

4.8.248 In the eastern and central part of the Vidlin to Out Skerries route, Beaw Field would be a very noticeable feature at the southern end of Yell. The Proposed Development would be noticeable and would be a notable addition to the level of wind farm development visible from this part of the ferry route. The magnitude of change would increase to Slight and the residual effect would increase to **Moderate** and **Not Significant**. In the western part of the route the Proposed Development would be less noticeable and although there would be sequential visibility, the reduction in influence of the proposed turbines means the effects would remain the same as assessed for Scenario 1.

CORE PATHS

4.8.249 Core paths in the Study area are mainly associated with settlements or settled areas on Shetland Mainland. The Solus assessment identified effects of less than **Moderate** Significance on core paths at Brae and Busta (core path CPPN11), North Roe (core path CPPN09), Vidlin (core path CPPNL01), Whalsay (core paths CPPW01, CPPW03 and CPPW04) and Eshaness and Hillswick (core path CPPN02 and CPPN06). The addition of the Proposed Development to the consented scenario of Beaw Field and Energy Isles would remain as assessed in Scenario 1 for these core paths due to the limited influence of the Proposed Development.

4.8.250 The Solus assessment identified Significant effects on core paths at Mossbank (core path CPPDe03), Ollaberry and Gluss (core path CPPN13), North Roe (core path CPPN08) and Lunna peninsula (core path CPPNL04). At Mossbank, Beaw Field would be noticeable on the east side of Yell Sound with all 17 turbines of that array likely to be visible. Beaw Field would be seen in the main outlook from core path CPPDe03 but the Proposed Development would have a greater influence.

4.8.251 At Ollaberry and Gluss from core path CPPN13, Energy Isles would be visible as a distant feature 22 km to the north east and would have a very limited influence on views. Beaw Field would be slightly more noticeable at a distance of 13 km to the east and would be seen in combination with the Proposed Development. However, the turbines of Beaw Field would appear smaller and more distance with a limited influence on views. The Proposed Development would increase the amount of wind farm development visible and would be the main influence on core path CPPN13.

4.8.252 In the North Roe area at core path CPPN08 there would be visibility of Energy Isles and Beaw Field from elevated parts of the core path. Both of these cumulative developments would be relatively distant and the Proposed Development would be the main influence on views in this scenario.

4.8.253 At Lunna peninsula, Beaw Field would strongly influence views from elevated parts of core path CPPNL04 and would be seen as a distinctly separate development to the Proposed Development. From lower coastal sections of core path CPPNL04 to the west Beaw Field would not be visible due to screening by landform. The Proposed Development would increase the amount of wind farm development visible and would have a greater influence on views. It would not be seen in combination with Beaw Field and Energy Isles would not be visible.

4.8.254 The analysis above indicates that while the Proposed Development would be seen in combination or successively with cumulative wind farms in Scenario 2, it would be the main influence in views. The overall effects on core paths arising from the addition of the Proposed Development to the consented scenario of Beaw Field and Energy Isles would remain as assessed in Scenario 1.

NATIONAL CYCLE NETWORK ROUTE 1

4.8.255 The Solus assessment found that there would be significant effects on the section of route that coincides with the B9076 at Scatsta and Graven and at the junction with the A968. The ZTVs shown on **Figure 4.19: Cumulative ZTV – Neshion with Beaw Field (Consented)** and **4.20: Cumulative ZTV – Neshion with Energy Isles (Consented) (EIAR Volume 3a)** show there would be no visibility of Beaw Field and Energy Isles from the B9076 at these locations. There would be no combined visibility.

4.8.256 There would be sequential visibility of the Proposed Development with Beaw Field and Energy Isles from the A968. The Proposed Development would be the main influence in the south at

Toft and at Ulsta and on the west side of Yell. There would be limited cumulative interaction with Energy Isles due to the distance between the two schemes and the lack of combined visibility along the route on Yell.

4.8.257 The overall effects on NCN1 arising from the addition of the Proposed Development to the consented scenario of Beaw Field and Energy Isles would relate mainly to sequential visibility and not combined visibility. The magnitude of cumulative change would be Slight and the residual cumulative effects would be **Moderate** and **Not Significant**.

VIEWPOINTS

4.8.258 The greatest potential for significant in-addition cumulative effects on viewpoints is on those viewpoints where both the Proposed Development and cumulative development have a strong influence. That is more likely to be the case for those viewpoints within 10 km of both the Proposed Development and the relevant cumulative development where visibility of both occurs.

4.8.259 For the visualisations discussed in this section refer to **EIAR Volume 3b**.

4.8.260 At Viewpoints 1 (**Figures 4.23a-4.23f: Viewpoint 1: Minor Track North Roe**), 3 (**Figures 4.25a-f: Viewpoint 3: Ollaberry. St Magnus' Church**), 4 (**Figure 4.26a-f: Viewpoint 4: Yell. Ulsta Shetland Ferry Terminal**), 9 (**Figures 4.31a-h: Viewpoint 9: Vantage Point by Houb of Scatsta**), 16 (**Figures 4.38a-f: Viewpoint 16: Busta Road, Ladies Mire**), 17 (**Figures 4.39a-f: Viewpoint 17: Minor road - Newhouse, Lunna Ness**), 18 (**Figures 4.40a-f: Viewpoint 18: Yell. A968/NCR1**) and 25 (**Figures 4.47a-h: Viewpoint 25: Toft**) (**EIAR Volume 3b**) there would be no, or very limited, visibility of Beaw Field and Energy Isles and the cumulative effects in Scenario 2 would be none.

4.8.261 At Viewpoints 7 (**Figures 4.29a-f: Viewpoint 7: Brough**), 8 (**Figures 4.30a-f: Viewpoint 8: Ferry Port - Toft - Revised Location**), 10 (**Figures 4.32a-f: Viewpoint 10: Cairn at Hill of Graven**), 11 (**Figures 4.33a-f: Viewpoint 11: Minor Road between Southlee and Graven**), 13 (**Figures 4.35a-f: Viewpoint 13: North Gluss**), 14 (**Figures 4.36a-f: Viewpoint 14: Minor Road south of Sullom**), 15 (**Figures 4.37a-f: Viewpoint 15: A970 Layby, Burraland**), 19 (**Figures 4.41a-f: Viewpoint 19: Yell. B9081, west of Loch of Littlester**), 20 (**Figures 4.42a-f: Viewpoint 20: A986/NCR1, South of Firths Voe**), 21 (**Figures 4.43a-f: Viewpoint 21: Mossbank**), 22 (**Figures 4.44a-h: Viewpoint 22: Ollaberry**) and 26 (**Figures 4.48a-f: Viewpoint 26: Yell Ferry Route**) (**EIAR Volume 3b**) Energy Isles would not be visible, barely discernible or seen as a distant feature and have a very limited influence on views. At these viewpoints the overall effects arising from the addition of the Proposed Development to the consented scenario of Beaw Field and Energy Isles would remain as assessed in Scenario 1.

4.8.262 At Viewpoints 15 (**Figures 4.37a-f: Viewpoint 15: A970 Layby, Burraland (EIAR Volume 3b)**), and 23 (**Figures 4.45a-f: Viewpoint 23: Vidlin (EIAR Volume 3b)**) Beaw Field would barely be discernible or seen as a distant feature. At these viewpoints the overall effects arising from the addition of the Proposed Development to the consented scenario of Beaw Field and Energy Isles would remain as assessed in Scenario 1.

4.8.263 At Viewpoint 2 (**Figures 4.24a-f: Viewpoint 2: Mid Field Cairn (WLA) (EIAR Volume 3b)**) the Proposed Development would be seen between operational Viking and consented Beaw Field. Beaw Field would have a limited influence on views.

4.8.264 At Viewpoint 5 (**Figures 4.27a-f: Viewpoint 5: Parking at Outrabister, Lunna Ness (EIAR Volume 3b)**) Beaw Field would be a noticeable feature and seen as a distinctly

separate development due to the distance between it and the Proposed Development and the expanse of sea that separates them.

4.8.265 At Viewpoint 6 (**Figures 4.38a-f: Viewpoint 6: Gardaness Hill (EIAR Volume 3b)**) Beaw Field would be seen as a relatively distant feature separated from the Proposed Development by an expanse of sea.

4.8.266 At Viewpoint 12 (**Figures 4.34a-f: Viewpoint 12: Crooksetter Hill,chambered cairn near NW summit of SM3608 (EIAR Volume 3b)**) Beaw Field and Energy Isles would be visible; however, the Proposed Development would be the main influence and the degree of cumulative interaction would be limited.

4.8.267 At Viewpoint 23 (**Figures 4.45a-f: Viewpoint 23: Vidlin (EIAR Volume 3b)**) Energy Isles and Beaw Field would be visible but would have a limited influence on views due to intervening distance.

4.8.268 At Viewpoints 2 (**Figures 4.24a-f: Viewpoint 2: Mid Field Cairn (WLA)**), 5 (**Figures 4.27a-f: Viewpoint 5: Parking at Outrabister, Lunna Ness**), 6 (**Figures 4.28a-f: Viewpoint 6: Gardaness Hill**), 12 (**Figures 4.34a-f: Viewpoint 12: Crooksetter Hill, chambered cairn near NW summit of SM3608**) and 23 (**Figures 4.45a-f: Viewpoint 23: Vidlin**) (**EIAR Volume 3b**) the overall effects arising from the addition of the Proposed Development to the consented scenario of Beaw Field and Energy Isles would remain as assessed in Scenario 1.

4.8.269 At Viewpoint 24 (**Figures: 4.46a-f: Viewpoint 24: Whalsay (EIAR Volume 3b)**) the Proposed Development would increase the amount of wind farm development visible across the horizon in the same part of the view as Beaw Field and Energy Isles. The addition of the Proposed Development would increase the influence of wind farm development. The magnitude of change arising from the addition of the Proposed Development to the consented scenario of Beaw Field and Energy Isles would increase from Slight to Moderate/Slight. The residual effect would increase from **Moderate/Minor** to **Moderate** and **Not Significant**.

LANDSCAPE DESIGNATIONS

SHETLAND NSA

4.8.270 The Solus assessment identified significant effects on SLQ2 Coastal views both close and distant. The significant effects would occur only in the North Roe NSA Area and only in the eastern part of that area.

4.8.271 The ZTVs shown on **Figure 4.19: Cumulative ZTV – Neshion with Beaw Field (Consented)** and **Figure 4.20: Cumulative ZTV – Neshion with Energy Isles (Consented) (EIAR Volume 3a)** indicate that the Proposed Development, Beaw Field and Energy Isles would be visible simultaneously from small areas of the eastern part of North Roe NSA. Energy Isles would be the more noticeable cumulative development and Beaw Field would appear distant and have a limited influence.

4.8.272 While the Proposed Development would increase the amount of wind farm development visible it would be introduced into views that are already influenced to a degree by industrial development. The Proposed Development would be a more noticeable addition and would not substantially increase the amount of development visible to the extent that its addition would increase the effects assessed in Scenario 1.

LOCAL LANDSCAPE AREAS

4.8.273 The Solus assessment did not identify significant effects on any LLA. Effects on LLA 17 West Sandwick to Gloup Holm would be **Moderate/Minor** and **Not Significant** with effects on the remaining three LLA being **Moderate** and **Not Significant**.

4.8.274 The analysis of cumulative effects on landscape character, coastal character and visual amenity described above indicates that the addition of the Proposed Development would not increase the effects assessed in Scenario 1. This would also be the case for the four LLAs due to the following factors:

- Intervening distance from the LLA
- Separation distance between the Proposed Development and the cumulative wind farms
- Limited cumulative interaction due to the separation from the Proposed Development by intervening expanses of sea and landform
- Mainly successive visibility with very limited combined visibility.

Cumulative Scenario 3 (In Planning)

4.8.275 Sullom Voe Terminal Wind Farm is the main cumulative development at planning stage that is considered in this Scenario which considers the addition of the Proposed Development to operational wind farms, consented Beaw Field and Energy Isles Wind Farm and Sullom Voe Terminal Wind Farm. Sullom Voe Terminal Wind Farm comprises of two turbines each 149.9 m to tip. Wethersta Wind Farm is also considered in this scenario although due to its location 12 km south southwest of the Proposed Development and its small scale (two turbines each 107 m in height to blade tip) there would be limited cumulative interaction with the Proposed Development. Note that Wethersta Wind Farm is shown as at Scoping stage on the visualisations (Figures 4.23a-f to 4.48a-f: Viewpoints 1 to 26 EIAR Volume 3b) but is assessed as In Planning in the cumulative assessment.

4.8.276 The focus of this assessment is on any difference in the effects described for Scenario 2.

LANDSCAPE CHARACTER AND COASTAL CHARACTER

4.8.277 Sullom Voe Terminal Wind Farm would be located in the west of SVT on a small area of moorland between terminal buildings and piers. The landscape and visual appraisal (LVA) that accompanies the planning application (Reference: 2025/317/PPF) indicates that the turbines would mainly influence landscape character within 5 km.

4.8.278 The Solus assessment of the Proposed Development and the assessment in Scenario 2 (Consented) identify significant effects on landscape character mainly within 5 km with significant effects predicted for a unit of LCT 355 Coastal Edge in the south of North Roe.

4.8.279 The addition of the Proposed Development to the In-Planning scenario of Sullom Voe Terminal, Wethersta, Beaw Field and Energy Isles would remain as assessed in Scenario 2 for the following reasons:

- Sullom Voe Terminal is a relatively small development. The turbines are tall at 149.9 m, but the overall scale of development is small
- Sullom Voe Terminal turbines would be associated with existing industrial development at the terminal
- Sullom Voe Terminal turbines would be situated close to the Proposed Development and would influence a localised area
- The Proposed Development would be the main influence but the level of overall additional effects would be similar to the Solus assessment and Scenario 2

4.8.280 While the Proposed Development would be a notable increase in wind farm development, the relatively small Sullom Voe Terminal development and its location within the main terminal means that the additional influence of the Proposed Development would be no greater than that assessed in Scenario 2.

VISUAL EFFECTS

4.8.281 For most of the visual receptors assessed the level of effect would be broadly similar to that described for the Solus assessment and Scenario 2 assessment. The main reasons in addition to those identified for landscape and coastal character being:

- Sullom Voe Terminal turbines would be situated away from settlements, settled areas, roads and core paths in an area influenced by industrial activity
- The Proposed Development would be more noticeable than Sullom Voe Terminal turbines which, although a new feature, would have localised adverse effects.

4.8.282 At Viewpoints 1 (**Figures 4.23a-4.23f: Viewpoint 1: Minor Track North Roe)**, 4 (**Figure 4.26a-f: Viewpoint 4: Yell. Ulsta Shetland Ferry Terminal**), 5 (**Figures 4.27a-f: Viewpoint 5: Parking at Outrabister, Lunna Ness**), 6 (**Figures 4.28a-f: Viewpoint 6: Gardaness Hill**), 7 (**Figures 4.29a-f: Viewpoint 7: Brough**), 8 (**Figures 4.30a-f: Viewpoint 8: Ferry Port - Toft - Revised Location**), 17 (**Figures 4.39a-f: Viewpoint 17: Minor road - Newhouse, Lunna Ness**), 21 (**Figures 4.43a-f: Viewpoint 21: Mossbank**), 23 (**Figures 4.45a-f: Viewpoint 23: Vidlin**), 24 (**Figures 4.46a-f: Viewpoint 24: Whalsay**), 25 (**Figures 4.47a-h: Viewpoint 25: Toft**) and 26 (**Figures 4.48a-f: Viewpoint 26: Yell Ferry Route**) (**EIAR Volume 3b**) there would be no or very limited visibility of Wethersta and Sullom Voe Terminal turbines and the cumulative effects in Scenario 3 would be Negligible or None.

4.8.283 At the remaining viewpoints, Sullom Voe Terminal turbines would be visible. At viewpoints 2 (**Figures 4.24a-f: Viewpoint 2: Mid Field Cairn (WLA)**), 9 (**Figures 4.31a-h: Viewpoint 9: Vantage Point by Houb of Scatsta**), 10 (**Figures 4.32a-f: Viewpoint 10: Cairn at Hill of Graven**), 11 (**Figures 4.33a-f: Viewpoint 11: Minor Road between Southlee and Graven**), 12 (**Figures 4.34a-f: Viewpoint 12: Crooksetter Hill, chambered cairn near NW summit of SM3608**), 13 (**Figures 4.35a-f: Viewpoint 13: North Gluss**), 14 (**Figures 4.36a-f: Viewpoint 13: North Gluss**), 15 (**Figures 4.37a-f: Viewpoint 15: A970 Layby, Burraland**) and 22 (**Figures 4.44a-h: Viewpoint 22: Ollaberry**) (**EIAR Volume 3b**) Sullom Voe Terminal turbines would be seen as part of the Sullom Voe Terminal industrial area and separated from the Proposed Development. The Proposed Development would be a noticeable addition and would be the main influence. At the remaining viewpoints intervening landform and distance would reduce the influence of Sullom Voe Terminal turbines in the context of existing industrial land uses and the Proposed Development would be a notable addition to the baseline assuming the prior presence of Sullom Voe Terminal turbines.

4.8.284 At the 26 viewpoints the addition of the Proposed Development to the In-Planning scenario of Sullom Voe Terminal, Beaw Field and Energy Isles would remain as assessed in Scenario 1 and Scenario 2. The addition of the Proposed Development would be a notable increase in wind energy development but the small size of Sullom Voe Terminal turbines means that the Proposed Development would be the main influence in the Scenario 3 baseline that assumes the prior presence of Beaw Field, Energy Isles and Sullom Voe Terminal turbines.

LANDSCAPE DESIGNATIONS

4.8.285 The addition of the Proposed Development to the In-Planning scenario of Sullom Voe Terminal, Wethersta, Beaw Field and Energy Isles would remain as assessed in Scenario 2 for similar

reasons to those described above for landscape, coastal character and visual amenity. Sullom Voe Terminal turbine would be closer to Ronas Hill LLA and Nibon and Mangaster LLA than the Proposed Development but its influence would not be greater than the larger scale of the Proposed Development. Sullom Voe Terminal turbines would be further away from Lunna Ness and Lunning LLA and would have a limited influence and the Proposed Development would make the greater contribution to cumulative effects. The Proposed Development would also have the greater influence on West Sandwick to Gloup Holm LLA and Sullom Voe Terminal turbines although visible, would be a minor feature.

4.8.286 At the North Roe Shetland NSA area Sullom Voe Terminal turbines would be visible and would be seen in association with SVT. While there would be a degree of cumulative interaction with the Proposed Development it is the Proposed Development that would have the greater influence and the level of effect would remain the same as assessed in Scenario 2.

4.9 Monitoring

Construction Phase Monitoring

4.9.1 As part of the CEMP construction activities would be monitored to minimise direct impacts on landscape fabric within the construction area.

Operational Phase Monitoring

4.9.2 There is no requirement for operational phase monitoring in relation to landscape, seascape and visual resources.

4.10 Summary of Potential Significant Effects

Table 4.7: Summary of Potential Significant Effects

Impact	Likely Significance of Effect	Mitigation Proposed	Residual Effect	Monitoring
Construction				
Impacts on landscape fabric	N/A	N/A	Moderate and Significant	N/A
Operation				
Impacts on Landscape and Coastal Character				
Impacts on LCT 350 Peatland and Moorland – host unit	N/A	N/A	Major/Moderate and Significant within 1.5 km	N/A
Impacts on LCT 350 Peatland and Moorland – Calbeck Ness unit	N/A	N/A	Moderate and Significant within 5 km	N/A
Impacts on LCT 350 Peatland and Moorland – Gluss Ayre unit	N/A	N/A	Moderate and Significant within 5 km	N/A
Impacts on LCT 354 Farmed and Settled Voes and Sounds – Toft, Mossbank and Lunna and North Nesting units	N/A	N/A	Moderate and Significant within 5 km	N/A

Table 4.7: Summary of Potential Significant Effects				
Impact	**Likely Significance of Effect**	**Mitigation Proposed**	**Residual Effect**	**Monitoring**
Impacts on LCT 356 Small Uninhabited Islands	N/A	N/A	Moderate and Significant within 5 km	N/A
Impacts on LCT 349 Major Uplands – Southern Unit	N/A	N/A	Major/Moderate and Significant within 5 km	N/A
Impacts on LCT 355 Coastal Edge – North Roe (Southern Unit)	N/A	N/A	Moderate and Significant	N/A
Impacts on CCA 27 Yell Sound	N/A	N/A	Major/Moderate and Significant within 2 – 3 km Moderate and Significant within 3 – 6 km.	N/A
Impacts on CCA 3 Lunna Ness	N/A	N/A	Moderate and Significant within 5 km.	N/A
Impacts on Visual Amenity and Views				
Impacts on Mossbank	N/A	N/A	Major/Moderate and Significant – in the northern most part of the village only	N/A
Impacts on Scatsta, Graven and Garth Area	N/A	N/A	Major/Moderate and Significant	N/A
Impacts at Ollaberry and North Gluss	N/A	N/A	Major/Moderate and Significant	N/A
Impacts at Housetter	N/A	N/A	Major/Moderate and Significant	N/A
Impacts at Lunna Peninsula	N/A	N/A	Major/Moderate and Significant	N/A
Impacts at West Yell	N/A	N/A	Moderate and Significant	N/A
Impacts at Ulsta and Copister	N/A	N/A	Major/Moderate and Significant	N/A
Impacts on the A968	N/A	N/A	Moderate and Significant at Swinster and south of West Sandwick on Yell Major/Moderate and Significant at Toft and to the north of Ulsta.	N/A

Table 4.7: Summary of Potential Significant Effects				
Impact	**Likely Significance of Effect**	**Mitigation Proposed**	**Residual Effect**	**Monitoring**
Impacts on the B9076	N/A	N/A	Major/Moderate and Significant at Houb of Scatsta and Graven and at the A968 junction.	N/A
Impacts on the B9079	N/A	N/A	Major/Moderate and Significant at Ollaberry.	N/A
Impacts on the B9081	N/A	N/A	Major/Moderate and Significant at Ulsta.	N/A
Impacts on Toft-Ulsta Ferry Route	N/A	N/A	Major/Moderate and Significant	N/A
Impacts on Core Path CPPDe03 at Mossbank	N/A	N/A	Major/Moderate and Significant	N/A
Impacts on Core Path CPPN13 at Ollaberry	N/A	N/A	Major/Moderate and Significant	N/A
Impacts on Core Path CPPN08 at Ronas Hill	N/A	N/A	Major/Moderate and Significant	N/A
Impacts on Core Path CPPNL04 at Lunna Peninsula	N/A	N/A	Major/Moderate and Significant	N/A
Impacts on NCN1	N/A	N/A	Moderate and Significant to Major/Moderate and Signifcant	N/A
Impacts on Representative Viewpoints				
Viewpoints 11, 18 and 20	N/A	N/A	Moderate and Significant	N/A
Viewpoints 3-5, 7, 9, 10, 13, 21, 22 and 26	N/A	N/A	Major/Moderate and Significant	N/A
Viewpoints 8, 12 and 25	N/A	N/A	Major and Significant	N/A
Impacts on Landscape Designations				
Shetland NSA North Roe Area SLQ2	N/A	N/A	Moderate and Significant in part of the North Roe Area Integrity of NSA not compromised	N/A
Night-time Effects				
Mossbank	N/A	N/A	Moderate and Significant	N/A
Ulsta	N/A	N/A	Moderate and Significant	N/A

Table 4.7: Summary of Potential Significant Effects				
Impact	**Likely Significance of Effect**	**Mitigation Proposed**	**Residual Effect**	**Monitoring**
Residential properties within 2 km: P8 Quoy Lee, P9 Whiytehouse, P10 Lighthouse and P11 Booth of Toft	N/A	N/A	Major/Moderate and Significant from external areas only.	N/A
A968 at Ulsta	N/A	N/A	Moderate and Significant	N/A
Cumulative Construction				
No significant effects predicted				
Cumulative Operation				
Scenario 2 (Consented)				
Impacts on Landscape and Coastal Character				
Impacts on LCT 350 Peatland and Moorland	N/A	N/A	No change compared to Scenario 1	N/A
Impacts on LCT 354 Farmed and Settled Voes and Sounds	N/A	N/A	No change compared to Scenario 1	N/A
Impacts on LCT 356 Small Uninhabited Islands	N/A	N/A	No change compared to Scenario 1	N/A
Impacts on LCT 349 Major Uplands – Southern Unit	N/A	N/A	No change compared to Scenario 1	N/A
Impacts on LCT 355 Coastal Edge – North Roe (Southern Unit)	N/A	N/A	No change compared to Scenario 1	N/A
Impacts on CCA 27 Yell Sound	N/A	N/A	No change compared to Scenario 1	N/A
Impacts CCA 3 Lunna Ness	N/A	N/A	No change compared to Scenario 1	N/A
Impacts on Visual Amenity and Views				
Settlements and settled areas	N/A	N/A	No change compared to Scenario 1	N/A
Impacts on the A968	N/A	N/A	No change compared to Scenario 1	N/A
Impacts on the B9076	N/A	N/A	No change compared to Scenario 1	N/A
Impacts on the B9079	N/A	N/A	No change compared to Scenario 1	N/A
Impacts on the B9081	N/A	N/A	An increase to Moderate and	N/A

Table 4.7: Summary of Potential Significant Effects				
Impact	**Likely Significance of Effect**	**Mitigation Proposed**	**Residual Effect**	**Monitoring**
			Significant west of Burravoe	
Impacts on Toft-Ulsta Ferry Route	N/A	N/A	No change compared to Scenario 1	N/A
Impacts on Core Paths	N/A	N/A	No change compared to Scenario 1	N/A
Impacts on NCN1	N/A	N/A	No change compared to Scenario 1	N/A
Impacts on Representative Viewpoints				
Viewpoints 11 and 20	N/A	N/A	Moderate and Significant	N/A
Viewpoints 5, 7, 10, 13, 21, 22 and 26	N/A	N/A	Major/Moderate and Significant	N/A
Viewpoints 8 and 12	N/A	N/A	Major and Significant	N/A
Impacts on Landscape Designations				
Shetland NSA North Roe Area SLQ2	N/A	N/A	Moderate and Significant in part of the North Roe Area Integrity of NSA not compromised	N/A
Scenario 3 (In Planning)				
Impacts on Landscape and Coastal Character	N/A	N/A	No change compared to Scenarios 1 and 2	N/A
Impacts on Visual Amenity and Views				
Impacts on Settlements and Settled Areas	N/A	N/A	No change compared to Scenarios 1 and 2	N/A
Impacts on Roads and Ferry Routes	N/A	N/A	No change compared to Scenarios 1 and 2	N/A
Impacts on Core Paths and NCN1	N/A	N/A	No change compared to Scenarios 1 and 2	N/A
Impacts on Representative Viewpoints				
Viewpoints 11, 18 and 20	N/A	N/A	Moderate and Significant	N/A
Viewpoints 3, 9, 10, 13, 22 and 26	N/A	N/A	Major/Moderate and Significant	N/A
Viewpoint 12	N/A	N/A	Major and Significant	N/A
Impacts on Designated Landscapes				
Shetland NSA North Roe Area	N/A	N/A	Moderate and Significant in part	N/A

Table 4.7: Summary of Potential Significant Effects				
Impact	**Likely Significance of Effect**	**Mitigation Proposed**	**Residual Effect**	**Monitoring**
SLQ2			of the North Roe Area Integrity of NSA not compromised	

5 CULTURAL HERITAGE

5.1 Executive Summary

5.1.1 This chapter of the Environmental Impact Assessment Report (EIAR) assesses the potential effects of the Proposed Development on cultural heritage and archaeological assets during construction and operation. The assessment considers both physical effects on archaeological remains within the Site and effects on the setting of designated heritage assets in the surrounding area. The assessment has been undertaken in accordance with the statutory and policy framework for cultural heritage in Scotland, including National Planning Framework 4 (NPF4), Historic Environment Policy for Scotland (HEPS), and relevant guidance issued by Historic Environment Scotland (HES) and the Chartered Institute for Archaeologists (CIfA).

5.1.2 The Site contains one Scheduled Monument (the Crooksetter Hill north west chambered cairn), along with a number of non-designated heritage assets, including post medieval settlement remains and possible prehistoric features. Desk based assessment, walkover survey and review of Historic Environment Scotland (HES) and Shetland Islands Council Historic Environment Record (HER) data indicate a high potential for previously unrecorded prehistoric archaeological remains within the Site, as well as a high potential for preserved palaeoenvironmental deposits within areas of deep peat.

5.1.3 Within the wider study areas, a range of designated heritage assets were identified, including Scheduled Monuments, Listed Buildings and an Inventoried Garden and Designed Landscape. All designated heritage assets within 10 km of the Site were considered for potential setting effects, informed by Zone of Theoretical Visibility (ZTV) modelling, site visits and visualisations.

5.1.4 The Proposed Development has been designed to avoid physical impacts on known heritage assets wherever practicable. No significant physical effects are predicted on designated heritage assets. Potential physical impacts could occur to:

- previously undiscovered archaeological remains;
- a post medieval field boundary; and
- limited areas of deep peat with palaeoenvironmental potential.

5.1.5 Without mitigation, impacts on unknown archaeological remains could be significant. However, with the implementation of appropriate archaeological mitigation, residual effects would be avoided or would be offset through preservation by record and are not expected to result in unacceptable harm.

5.1.6 No physical impacts on archaeological remains are predicted during operation. Operational effects relate solely to changes to the setting of heritage assets. The assessment identified:

- Moderate (Significant in EIA terms) effects on the settings of three Scheduled Monuments:
  - Graven chambered cairn;
  - Crooksetter Hill south east chambered cairn; and
  - Crooksetter Hill north west chambered cairn**.**
- Minor, Negligible, or Neutral effects on the settings of other designated heritage assets, which are not significant in EIA terms.

5.1.7 Although Moderate effects have been identified, in the context of the NPF4 Policy 7h) test it is considered that the understanding, appreciation and experience of the scheduled

monuments would be adequately retained such that the integrity of their settings would not be significantly adversely affected.

5.1.8 Cumulative effects with other consented and proposed wind energy developments were assessed. The assessment concludes that cumulative impacts would not increase the level of effect beyond those identified for the Proposed Development alone, and no additional significant cumulative effects are predicted.

5.1.9 Embedded mitigation through design has been central to avoiding or reducing impacts, particularly through turbine siting and buffering of known heritage assets. Additional mitigation during construction includes:

- archaeological watching briefs;
- targeted metal detecting surveys; and
- palaeoenvironmental sampling of deep peat deposits.

5.1.10 These measures would be secured through planning conditions and consultation with Shetland Islands Council. No further mitigation is available for setting effects beyond design led measures, and therefore residual operational effects remain unchanged from the assessed effects. Enhancement and interpretation opportunities are proposed to provide public benefit and improve understanding of the Site's cultural heritage.

5.1.11 The assessment concludes that, while the Proposed Development would give rise to Moderate and EIA Significant effects on the setting of three Scheduled Monuments, these effects would not result in unacceptable harm to cultural heritage interests when considered against national policy. All other effects are Minor, Negligible or Neutral. With appropriate mitigation and management in place, the Proposed Development is considered acceptable in cultural heritage and archaeological terms.

5.2 Introduction

5.2.1 This chapter considers the likely significant effects on the cultural heritage and archaeology receptors associated with the construction and operation of Neshion Energy Park ('the Proposed Development').

5.2.2 The Proposed Development is a renewable energy development comprised of up to eight wind turbines, a Battery Energy Storage System (BESS) and associated infrastructure adjacent to Sullom Voe Oil Terminal (SVT) and the Shetland Gas Plant in Shetland, Scotland. The assessment is based on the Proposed Development as described in **Chapter 2: Proposed Development (EIAR Volume 2)**.

5.2.3 The specific objectives of the chapter are to:

- describe the existing cultural heritage and archaeological baseline context;
- describe the assessment methodology and significance criteria used in completing the impact assessment;
- describe the potential effects, including construction, operational and cumulative effects;
- describe the mitigation measures proposed to address likely significant effects; and
- assess the residual effects remaining following the implementation of mitigation.

5.2.4 This assessment has been carried out by Kevin Claxton BA (hons), MA of AOC Archaeology Group. Kevin is a Project Officer and a Member of the Chartered Institute for Archaeologists (CIfA) with over 14 years' experience working in the commercial and academic archaeology sectors in Britain; initially as a field archaeologist and latterly as a consultant. Kevin joined

AOC in 2023 and has subsequently completed a number of heritage assessments for a range of development projects across the UK.

5.2.5 The assessment has been overseen and reviewed by Victoria Oleksy BA (hons), MA (commendation). Victoria is an Associate Director at AOC Archaeology Group and Member of the Chartered Institute for Archaeologists (CIfA) with extensive experience in undertaking and managing cultural heritage and archaeology assessments for Environmental Impact Assessment (EIA) developments. Victoria has over 20 years of experience in the commercial archaeology and heritage sectors and in addition to undertaking and managing assessments has provided expert witness services for a number of planning appeals and called-in planning applications.

5.2.6 AOC is a Registered Organisation (RO) of CIfA. This status ensures that there is regular monitoring and approval by external peers of our internal systems, standards and skills development. AOC is also ISO 9001:2015 accredited, in recognition of the company's Quality Management System.

5.2.7 AOC conforms to the standards of professional conduct outlined in CIfA's Code of Conduct[1], the CIfA Standard and Guidance for Commissioning Work or Providing Consultancy Advice on Archaeology and the Historic Environment[2], the CIfA Standards and Guidance for Historic Environment Desk-Based Assessments[3], the CIfA Regulations for Professional Conduct[4], and other relevant guidance.

5.2.8 This chapter is supported by the following figures and technical appendices:

- Volume 3a: Figures
  - **Figure 5.1: Heritage Assets within Site**;
  - **Figure 5.2: Heritage Assets within Site** and **1 km Study Area**;
  - **Figure 5.3: Designated Heritage Assets** and **ZTV within 5 km Study Area**; and
  - **Figure 5.4: Designated Heritage Assets** and **ZTV within 10 km Study Area**.
- Volume 3b: Visualisations and Wirelines
  - **Figure 5.5a-f: CHVP1a: SM2080 Fugla Ness broch**;
  - **Figure 5.6a-f: CHVP1b: Fugla Ness broch from Yell Sound**;
  - **Figure 5.7a: CHVP2a: SM2091 Holm of Copister broch - wireline**;
  - **Figure 5.8a-f: CHVP2b: SM2091 Holm of Copister broch – photomontage**;
  - **Figure 5.9a-f: CHVP3: SM3524 Cairn at Hill of Graven**;
  - **Figure 5.10a-e: CHVP4: SM3564 Hill of Dale chambered cairn**;
  - **Figure 5.11a-f: CHVP5: SM3576 Crooksetter Hill south east chambered cairn**;
  - **Figure 5.12a-f: CHVP6: SM3608 Crooksetter Hill north west chambered cairn**;
  - **Figure 5.13a-f: CHVP7: SM2043 Ronas Hill chambered cairn**;
  - **Figure 5.14a: CHVP8a: SM10756 The Kames coastal defence battery – wireline**;

[1] Chartered Institute for Archaeologists (CIfA) (2025a). *Code of Conduct: professional ethics in archaeology*. Available at: https://www.archaeologists.net/sites/default/files/2025-10/Code-of-conduct_revOct-2025.pdf [Accessed 27/01/2026].

[2] CIfA (2020a). *Standard and guidance for Commissioning Work or Providing Consultancy Advice on the Historic Environment.* Available at: https://www.archaeologists.net/sites/default/files/2023-11/CIfA-SandG-Archaeological-Consultancy-2020.pdf [Accessed 27/01/2026].

[3] CIfA (2020b). *Standard and Guidance for Historic Environment Desk-Based Assessment*. Available at: https://www.archaeologists.net/sites/default/files/2023-11/CIfA-SandG-DBA-2020.pdf [Accessed 27/01/2026].

[4] CIfA (2025b). *Regulations for Professional Conduct*. Available at: https://www.archaeologists.net/sites/default/files/2025-10/Regulations-for-professional-conduct_revOct-2025.pdf [Accessed 27/01/2026].

  - **Figure 5.15a-f: CHVP8b: SM10756 The Kames coastal defence battery – view from Gluss Ayre**;
  - **Figure 5.16a-f: CHVP9: SM3608 Crooksetter Hill north west chambered cairn – forecourt of the cairn**;
  - **Figure 5.17a-f: CHVP10: SM3576 Crooksetter hill south east chambered cairn – view across the cairn**;
  - **Figure 5.18a-f: CHVP11: View from the south on approach to the Crooksetter cairns**; and
  - **Figure 5.19a-f: CHVP12: View from the vicinity of the lochans**.
- Volume 4: Technical Appendices
  - **Technical Appendix 5.1: Cultural Heritage Assessment Methodology**;
  - **Technical Appendix 5.2: Archaeological Desk-Based Assessment**;
  - **Technical Appendix 5.3: Setting Assessment**;
  - **Technical Appendix 5.4: Heritage Gazetteer**; and
  - **Technical Appendix 5.5: Plates**.

5.2.9 Figures and technical appendices are referenced in the text where relevant.

5.3 Assessment Methodology

Overview

5.3.1 The cultural heritage assessment methodology is detailed in **Technical Appendix 5.1: Cultural Heritage Assessment Methodology (EIAR Volume 4)** and follows the statutory framework for heritage in Scotland as outlined in the Town and Country Planning (Scotland) Act 1997[5] as amended in the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997[6] and the Ancient Monuments and Archaeological Areas Act 1979[7], both of which are modified by the Historic Environment (Amendment) (Scotland) Act 2011[8]. The implications of these Acts with regard to planning policy and other relevant policy are described within National Planning Framework 4 (NPF4)[9], and Historic Environment Policy for Scotland (HEPS)[10].

Scope of Assessment

Potential Impacts Scoped In

5.3.2 The scope of this chapter is set out in **Table 5.1**. The scope of the assessment has been informed by consultation responses detailed in **Technical Appendix 1.1: Consultation Register (EIAR Volume 4)** and the following guidelines/policies:

- National Planning Framework 4 (NPF4)[9];
- HEPS[10], including Designation Policy and Selection Guidance;

[5] *Town and Country Planning (Scotland) Act (1997) (c8)*. London: UK Government. Available at: https://www.legislation.gov.uk/ukpga/1997/8/contents [Accessed 27/01/2026].

[6] *Planning (Listed Buildings and Conservation Areas) (Scotland) Act (1997) (c9)*. London: UK Government. Available at: https://www.legislation.gov.uk/ukpga/1997/9/contents [Accessed 27/01/2026].

[7] *Ancient Monuments and Archaeological Areas Act (1979) (c46)*. London: UK Government. Available at: https://www.legislation.gov.uk/ukpga/1979/46 [Accessed 27/01/2026].

[8] *Historic Environment (Amendment) (Scotland) Act (2011) (c3)*. London: UK Government. Available at: https://www.legislation.gov.uk/asp/2011/3/contents [Accessed 27/01/2026].

[9] Scottish Government (2023). *National Planning Framework 4*. Available at: https://www.gov.scot/publications/national-planning-framework-4/ [Accessed 27/01/2026].

[10] Historic Environment Scotland (HES) (2019). *Historic Environment Policy for Scotland*. Available at: https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=1bcfa7b1-28fb-4d4b-b1e6-aa2500f942e7 [Accessed 27/01/2026].

- Shetland Islands Council (SIC) Local Development Plan (LDP) 2014[11];
- Managing Change in the Historic Environment: Setting[12]; and
- Environmental Impact Assessment Handbook v5[13].

Table 5.1: Impacts Considered within the Assessment

Impact	Phase*	
	C	**O**
Physical impacts to all heritage assets within the Site boundary, either as a result of direct damage or as an indirect consequence of the development, such as erosion or damage from construction vibration.	X	
Impacts to the setting of all designated heritage assets identified within the Zone of Theoretical Visibility (ZTV) up to 5 km from the Site boundary, including World Heritage Sites, Scheduled Monuments, Inventoried Battlefields, Inventoried Gardens and Designed Landscapes, Conservation Areas, and Listed Buildings.		X
Impacts to the setting of nationally significant designated heritage assets (defined as those assets which are of Very High or High importance as set out in Table 5.1.1 in **Technical Appendix 5.1: Cultural Heritage Assessment Methodology (EIAR Volume 4)**) identified within the ZTV up to 10 km from the Site boundary, including World Heritage Sites, Scheduled Monuments, Inventoried Battlefields, Inventoried Gardens and Designed Landscapes, and Category A Listed Buildings.		X
Impacts to the setting of the Ronas Hill chambered cairn (Asset 39) due to its location on Ronas Hill, the highest point of the Shetland Islands		X
Impacts on the setting of designated heritage assets as a result of the cumulative effect of other operational/under construction, consented, and proposed (at the application stage) wind farm schemes. Cumulative effects will be considered for designated assets as identified in the 5 km and 10 km Study Areas.		X

***C=construction, O=operation and maintenance, X=denotes potential impact considered in assessment**.

5.3.3 The chapter assesses cumulative effects as arising from the addition of the Proposed Development to other cumulative developments, which are the subject of a valid planning application. Operational, under construction and consented developments are considered as part of the baseline. Developments close to the end of their operational life will be included as part of the baseline to present a 'worst case scenario'.

5.3.4 The assessment is based on the Proposed Development as described in **Chapter 2: Description of Proposed Development (EIAR Volume 2)**.

Potential Impacts Scoped Out

5.3.5 The assessment focusses on likely significant effects and as such impacts that are not likely to result in significant effects have been scoped out of the assessment. A summary of the impacts scoped out, together with reasoning for scoping them out is presented in **Table 5.2**.

[11] Shetland Islands Council (2014). *Shetland Local Development Plan*. Available at: https://www.shetland.gov.uk/development-plans-policy/development-plans [Accessed 27/01/2026].

[12] HES (2020a). *Managing Change in the Historic Environment: Setting*. Available at: https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=80b7c0a0-584b-4625-b1fd-a60b009c2549 [Accessed 27/01/2026].

[13] HES and Scottish Natural Heritage (SNH) (2018). *Environmental Assessment Handbook*. Available at: https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=6ed33b65-9df1-4a2f-acbb-a8e800a592c0 [Accessed 27/01/2026].

Table 5.2: Impacts Scoped Out of the Assessment	
Impact	**Reasoning**
Physical impacts on assets located outwith the Site boundary.	Heritage assets located outwith the Site boundary would not be impacted by construction work within the Site boundary.
Impacts on the settings of non-designated heritage assets, excepting those of potential national importance.	These are generally considered less sensitive to changes in their settings and are judged to be unlikely to be subject to significant settings effects.
Impacts on the settings of designated heritage assets outwith the ZTV.	The Proposed Development would not be visible from these assets, further, these assets have been reviewed to assess whether the Proposed Development is to be seen in key views towards them, and no such views have been identified. Therefore, the Proposed Development is not anticipated to have a significant effect on their setting.
Impacts on the settings of designated heritage beyond 10 km of the Site boundary, excepting those already scoped in above.	AOC have reviewed the nationally important designated heritage assets within the ZTV to a distance of 40 km. Due to the topography, the ZTV indicates that visibility beyond 10 km is largely limited to the sea, with some visibility along the coasts and high points. The large majority of these assets are funerary monuments and initial assessment of these assets has identified that they are largely located on higher ground near waterways and lochs. Funerary monuments in the ZTV beyond 10 km of the Site appear to relate to the fertile land and the waterways. Whilst the Proposed Development may be visible in views from some of these assets, it would not impact the relationship of these assets to the immediate landform in which they are set, the fertile land or to other possible contemporaneous assets. Thus, the Proposed Development is not anticipated to have a significant effect on their setting.
Impacts to the setting of Scheduled brochs and forts identified within the Zone of Theoretical Visibility up to 40 km from the Site boundary.	As noted above, whilst the Proposed Development may be visible in views from these assets, it would not impact the relationship of these assets to the immediate landform in which they are set or to other possible contemporaneous assets. Thus, the Proposed Development is not anticipated to have a significant effect on their setting. This was subject to consultation with SIC Regional Archaeologist and no response was received, as such it is considered that the Scoping out of this impact has been agreed.

Method of Baseline Characterisation

Extent of the Study Area

5.3.6 In order to assess the potential for effects on cultural heritage assets resulting from the Proposed Development, the following Study Areas have been identified:

- A Core Study Area (the Site), which includes all land within the Site (as defined by the application boundary on **Figure 2.1: Site Layout (EIAR Volume 3a)**), which will be subject to assessment for potential physical and setting effects;
- A 1 km Study Area, including land within 1 km of the initial Site boundary used for the Scoping assessment, which has been used for the identification of all known heritage assets and known previous archaeological interventions (events) in order to help predict whether any similar hitherto unknown archaeological remains are likely to survive within the Site and thus be impacted by the Proposed Development;
- A 5 km Study Area, including land within 5 km of the initial Site boundary used for the Scoping assessment, which has been used for the assessment of potential impacts on the settings of all designated heritage assets including World Heritage Sites, Scheduled

Monuments, Listed Buildings, Inventoried Gardens and Designed Landscapes, Inventoried Battlefields and Conservation Areas;

- A 10 km Study Area, including land within 10 km of the initial Site boundary used for the Scoping assessment, which has been used for the assessment of potential impacts on the settings of all nationally important heritage assets including World Heritage Sites, Scheduled Monuments, Category A Listed Buildings, Inventoried Gardens and Designed Landscapes, and Inventoried Battlefields.

Desk Study

5.3.7 The archaeological and historical baseline has been established with reference to the following information sources:

- Historic Environment Scotland (HES) for designated heritage asset data held in the National Record for the Historic Environment (NRHE);
- The SIC Historic Environment Record (HER) for records of designated and non-designated assets and previous archaeological interventions;
- Historic Maps held by the National Library of Scotland (NLS)[14] and the British Library (via Old Maps Online[15] and Wikimedia Commons[16]);
- Archaeology Data Service (ADS)[17] for heritage data including grey literature reports, archaeological journals, and the Excavation Index for Scotland;
- Aerial photography images from the National Collection of Aerial Photography (NCAP)[18] website and the Cambridge Collection of Aerial Photography (CUCAP)[19] website;
- Google Earth Pro™ for current and historical satellite imagery of the Site;
- British Geological Survey[20] data for information about the geological character of the Site;
- The Scottish Archaeological Research Framework (ScARF) for national research frameworks and chronological reports[21];
- Shetland Museum and Archives for any available pre–Ordnance Survey (OS) mapping, photographs, and other documentary sources; and
- Any other relevant published works, such as previous archaeological reports and assessments.

5.3.8 The Shetland Museum and Archives was visited on 27 March 2025 for any available pre–OS mapping and other documentary sources.

Field Survey

5.3.9 Walkover surveys of the Site and surrounding area were undertaken to investigate the condition and significance of known archaeology on the Site with the aim of identifying any previously unknown remains.

[14] National Library of Scotland (NLS) (2026). *Map Images*. Available at: https://maps.nls.uk/ [Accessed 27/01/2026].

[15] Old Maps Online (2026). *Explore Maps*. Available at: https://www.oldmapsonline.org/ [Accessed 27/01/2026].

[16] Wikimedia Commons (2020). *Old Maps of Shetland Islands*. Available at: https://commons.wikimedia.org/wiki/Category:Old_maps_of_the_Shetland_Islands [Accessed 28/01/2026].

[17] Archaeology Data Service (ADS) (2026). *Search data*. Available at: https://archaeologydataservice.ac.uk/search-data/ [Accessed 28/01/2026].

[18] National Collection of Aerial Photography (NCAP) (2026). *Map Search*. Available at: https://ncap.org.uk/search?view=map [Accessed 27/01/2026].

[19] University of Cambridge (2026). *Cambridge University Collection of Aerial Photography (CUCAP)*. Available at: https://www.cambridgeairphotos.com/ [Accessed 27/01/2026].

[20] British Geological Survey (BGS) (2026a). *Geology of Britain Viewer*. Available at: https://geologyviewer.bgs.ac.uk/ [Accessed 27/01/2026].

[21] Scottish Archaeological Research Framework (ScARF) (2026). *Panel Reports and Chronology*. Available at: https://scarf.scot/national/panel-report-chronology-and-downloads/ [Accessed 28/01/2026].

5.3.10 The walkover survey was undertaken in March 2025 by two archaeologists walking in transects across the Site. The entire Site was covered, though the focus was on areas likely to be used for proposed infrastructure or habitat/ecological enhancement. The aim of the survey was to assess the significance and extent of remains identified through desk-based assessment and previous works and to identify any hitherto unrecorded remains that might be present within the Proposed Development footprint.

5.3.11 The ZTV was used to identify those assets within the Study Areas with potential visibility of the Proposed Development. Where possible, these assets were then visited between 24 and 27 March 2025 in order to assess the setting of the assets and confirm the potential for setting impacts.

5.3.12 All photographs taken during the surveys are presented in **Technical Appendix 5.5: Plates (EIAR Volume 4)**.

Method of Assessment

Overview

5.3.13 Detailed information on the assessment methodology, including criteria for assessing sensitivity of receptors, Magnitude of Impact and Level of Effect, as well as cumulative effects, is provided in **Technical Appendix 5.1: Assessment Methodology (EIAR Volume 4)**.

5.3.14 '**Major**' and '**Moderate**' effects are considered to be significant within the context of the EIA Regulations.

Limitations and Assumptions

5.3.15 The cultural heritage assessment is based upon data obtained from publicly accessible archives as described in the data sources in Section 5.3.7 and in **Technical Appendix 5.2: Archaeological Desk-Based Assessment (EIAR Volume 4)**. An extract from the SIC HER was received by AOC in February 2025 and the National Record for the Historic Environment (NRHE) was accessed in September 2025 and checked in February 2026. The information presented in the gazetteer in **Technical Appendix 5.4: Heritage Gazetteer (EIAR Volume 4)** regarding known heritage assets is current to these dates.

5.3.16 These limitations are not considered to undermine the validity of the assessment in terms of potential impacts resulting from the Proposed Development and on-site peatland and habitat enhancement proposals.

5.3.17 It is noted that **Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)** indicates that off-site peatland restoration is also proposed; however, the location of these restoration works has not yet been determined. As such, this assessment does not include an assessment of potential impacts of off-site peatland restoration on heritage assets. It is recommended that once the location for off-site peatland restoration is identified that this be subject to an archaeological desk-based assessment, which should set out appropriate mitigation measures and that these should take account of the extent of and method of implementing the restoration proposals.

5.4 Baseline Conditions

Current Baseline

5.4.1 Within the Site there is one designated heritage asset (**Figure 5.1: Heritage Assets within Site (EIAR Volume 3a)**), the north west Crooksetter Hill chambered cairn Scheduled Monument (Asset 35).

5.4.2 Additionally, within 1 km of the Site there are a further five designated heritage assets (**Figure 5.2: Heritage Assets within Site and 1 km Study Area (EIAR Volume 3a)**), which include:

- Four Scheduled Monuments; and
- One Category B Listed Building.

5.4.3 A further 14 designated heritage assets have been identified between 1 km and 5 km of the Site (**Figure 5.3: Designated Heritage Assets and ZTV within 5 km Study Area (EIAR Volume 3a)**), which include:

- Six Scheduled Monuments;
- Three Category B Listed Buildings; and
- Five Category C Listed Buildings.

5.4.4 A further 29 designated heritage assets of national importance (defined as those assets which are of Very High or High importance as set out in Table 5.1.1 in **Technical Appendix 5.1: Cultural Heritage Assessment Methodology (EIAR Volume 4)**) have been identified between 5 km and 10 km of the Site (**Figure 5.4: Designated Heritage Assets and ZTV within 10 km Study Area (EIAR Volume 3a)**), which include:

- 27 Scheduled Monuments;
- One Inventoried Garden and Designed Landscape (GDL); and
- One Category A Listed Building.

5.4.5 The SIC HER identified one non-designated heritage asset (Asset 119) within the Site and a further 72 non-designated heritage assets and six previous events within the 1 km Study Area (**Figure 5.1: Heritage Assets within Site and Figure 5.2: Heritage Assets within Site and 1 km Study Area (EIAR Volume 3a)**). A further five non-designated heritage assets were identified though the study of historic maps and during the walkover survey, including three within the Site boundary (Assets 130, 131, and 132).

5.4.6 There are no World Heritage Sites, Inventoried Battlefields, or Conservation Areas located within 10 km of the Site or within the ZTV beyond the 10 km Study Area.

5.4.7 The full assessment of the archaeological and historical baseline is provided in **Technical Appendix 5.2: Archaeological Desk-Based Assessment (EIAR Volume 4)**.

Future Baseline

5.4.8 Without the Proposed Development, the archaeological baseline would be stable and the condition of any buried remains on Site would be unlikely to substantially change. It is recognised that for above ground heritage assets, there may be some decay over time in the absence of the Proposed Development as they near the natural end of their design lifespan. The setting of designated heritage assets is also unlikely to substantially change. It is recognised that there may be other future developments that may occur within the Study Areas that could have the potential to alter the setting of assets: however, the potential

impacts of any such future development cannot be predicted or assessed fully where details are not currently available. Where details of future developments are known these will be assessed as part of the cumulative baseline in the cumulative effects assessment.

Summary of Sensitive Receptors

5.4.9 A summary of the receptors located within the Site boundary and therefore considered to have the potential to be physically impacted by the Proposed Development and therefore scoped into the EIA Report (EIAR) are set out in **Table 5.3**, together with their associated importance/sensitivity. In the context of this development, physical impacts have the capacity to result in impacts of high magnitude as they could potentially result in the destruction or removal of any archaeological deposits which may be present.

Table 5.3: Summary of Receptors and Importance/Sensitivity to Physical Impacts

Receptor	Importance/ Sensitivity	Justification
Crooksetter Hill chambered cairn near NW summit of (Scheduled Monument SM3608, Asset 35)	High	The monument is of national importance as a prehistoric burial cairn which may retain original deposits within the body of the cairn and beneath it. It has the potential to contribute to an understanding of prehistoric burial practices and agricultural economy.
Tronaster Township (Non-Designated Heritage Asset, Asset 119)	Low	This asset is a non-designated asset and is of local importance so considered to have Low importance. Although the buildings are now ruinous, they are still relatively prominent in the landscape and their layout and construction can still be understood and appreciated. Additionally, any buried remains would have the potential to add to our understanding of early post-medieval settlements.
Field Boundary (Non-Designated Heritage Asset, Asset 130)	Negligible	This asset comprises the incomplete remains of a former field boundary; a feature that is common across Shetland and Scotland. As such it is considered to be of Negligible importance.
Possible Cairn (Non-Designated Heritage Asset, Asset 131)	Low	This asset was identified on the walkover survey as a possible cairn but needs further investigation to fully assess the nature, function, and importance of the asset. If the feature is a prehistoric cairn then it has the potential to contribute to an understanding of prehistoric burial practices. However, if it is a clearance cairn or natural feature it would be considered to have limited potential to contribute to an understanding of the past.
Possible Cairn (Non-Designated Heritage Asset, Asset 132)	Low	This asset was identified on the walkover survey as a possible cairn but needs further investigation to fully assess the nature, function, and importance of the asset. If the feature is a prehistoric cairn then it has the potential to contribute to an understanding of prehistoric burial practices. However, if it is a clearance cairn or natural feature it would be considered to have limited potential to contribute to an understanding of the past.
Previously undiscovered archaeological remains	Negligible to High	The assessment has identified a High potential for previously undiscovered prehistoric remains to be present within the Site. Any prehistoric remains that may survive on Site have the potential to be of up to High Importance depending on their nature.
Palaeoenvironmental remains within deep peat deposits	Medium to High	Deep peat deposits have been recorded across the Site. These deep peat deposits have a high potential for preservation of paleoenvironmental proxies which may inform us about past environments and would be considered to have Medium or High Importance.

5.4.10 All receptors with potential to be subject to setting effects are listed in full in **Technical Appendix 5.3: Setting Assessment (EIAR Volume 4)**. A summary of the receptors located within the ZTV and therefore with the potential to be subject to setting effects from the Proposed Development is provided **Table 5.4**. The ZTV and relevant heritage assets are shown on **Figure 5.2: Heritage Assets within Site and 1 km Study Area, Figure 5.3: Designated Heritage Assets and ZTV within 5 km Study Area and Figure 5.4: Designated Heritage Assets and ZTV within 10 km Study Area (EIAR Volume 3a)**.

Table 5.4: Summary of Receptors and Sensitivity to Setting Impacts

Receptor	Sensitivity	Justification
Busta, standing stone 100 m E of Staneside (Scheduled Monument, SM2028, Asset 1)	High	The standing stone is located on relatively low-lying ground on the north west shore of Busta Voe c.11.2 km south west of the nearest turbine and would theoretically have visibility of eight turbines. As a standing stone its location is likely to have been deliberately chosen as part of a routeway and with intervisibility between other contemporary monuments, and therefore is considered to have a High sensitivity to changes to its setting.
Head of Brough, broch, West Yell (Scheduled Monument, SM2071, Asset 5)	High	The broch is located close to the shore of West Yell c.7.5 km north east of the nearest turbine with theoretical visibility of eight turbines. The setting of the broch is based on its intervisibility with the surrounding land and seascape and with other prehistoric brochs and forts, and so it is considered to have a High sensitivity to changes to its setting.
Fugla Ness, broch 330 m NNW of (Scheduled Monument, SM2080, Asset 6)	High	This broch is located c.1.9 km east of the nearest turbine on the shore of Yell Sound with theoretical visibility of eight turbines. The setting of the broch is based on its intervisibility with the surrounding land and seascape and with other prehistoric brochs and forts, and so it is considered to have a High sensitivity to changes to its setting.
Holm of Copister, broch 850 m SW of Southerness (Scheduled Monument, SM2091, Asset 7)	High	The Scheduled Monument is located to the east of the Site c.5.1 km from the nearest proposed turbine with theoretical visibility of eight turbines. The setting of the broch is based on its intervisibility with the surrounding land and seascape and with other prehistoric brochs and forts, and so it is considered to have a High sensitivity to changes to its setting.
Giant's Grave, standing stones and cairn, Beorgs of Housetter (Scheduled Monument, SM2200, Asset 8)	High	These monuments are located on low ground at the base of the Beorgs of Housetter ridge c.9.2 km north west of the nearest turbine with theoretical visibility of six turbines. As a burial monument and standing stone the monument's setting is based on its relationship with the surrounding monuments (Assets 27 and 34) and low position with visibility towards the sea, and so its setting is judged to make a contribution to the way in which the monument is understood, appreciated and experienced and it is considered to have a High sensitivity to changes in its setting.
Chapel Knowe, earthworks, church and graves 40 m WNW of Lunna Church (Scheduled Monument, SM2691, Asset 9)	Medium	This monument is located on a narrow saddle of land on the West Lunna peninsula overlooking West Lunna Voe, c.9.8 km south east of the nearest turbine and with theoretical visibility of six turbines. The monument is located within the Lunna House GDL (Asset 45). The monument's setting and key views relate to its immediate environs and the views of the West Lunna Voe and as such it is considered to have a Medium sensitivity to changes to its wider setting.
Graven, chambered cairn 650 m SW of (Scheduled Monument, SM3524, Asset 16)	High	The Scheduled Monument is located south west of the Site c.3.9 km from the nearest proposed turbine and according to the ZTV would theoretically have visibility of eight turbines. The location of the cairn, on the shoulder of a hill overlooking the Sullom Voe to the north west, indicates that it was placed deliberately within the landscape to afford views particularly to the north and north west. The indication of an entrance to the north also indicates a key sightline in this direction. Likely views towards it from the Voe and lower lying land to the north and north west would have also been important; though the current height of the monument precludes any views of it unless in close proximity. Intervisibility with other broadly contemporary assets of the same type, such as the Crooksetter Hill chambered cairns (Assets 32

Table 5.4: Summary of Receptors and Sensitivity to Setting Impacts		
Receptor	**Sensitivity**	**Justification**
		and 35), may have also been important. On this basis, its setting is judged to make a contribution to the way in which the monument is understood, appreciated and experienced and it is considered to have a High sensitivity to changes in its setting.
Auchensalt, burnt mound 85 m E of (Scheduled Monument, SM3556, Asset 19)	Low	This burnt mound is located c.1.4 km to the east of the nearest turbine on the shore of Yell Sound with theoretical visibility of six turbines. The significance of the burnt mound is derived primarily from its intrinsic characteristics and location close to a nearby water source and it is judged to be of Low sensitivity to changes beyond its immediate functional setting.
Norden, burnt mound 160 m ESE of (Scheduled Monument, SM3557, Asset 20)	Low	This burnt mound is located c.1.4 km to the east of the nearest turbine on the shore of Yell Sound with theoretical visibility of one turbine. The significance of the burnt mound is derived primarily from its intrinsic characteristics and location close to a nearby water source and it is judged to be of Low sensitivity to changes beyond its immediate functional setting.
Skeo Knowe, mound 200 m E of Nissetter (Scheduled Monument, SM3562, Asset 22)	Medium	This mound is located c.5.4 km to the west of the nearest turbine with theoretical visibility of eight turbines. The mound may be natural in origin, but a cinerary urn has been reported to have been found suggesting it has been used as a burial monument. It is located on low ground near a beach overlooking the Gluss Voe with limited visibility beyond, although the north west Crooksetter Hill cairn (Asset 35) is just about visible to the south west. The setting of the monument and its key views relate to its immediate environs and the views of the Gluss Voe and possible intervisibility with one other contemporary monument and as such is considered to have a Medium sensitivity to changes to its wider setting.
Mangaster, chambered cairn 270 m W of (Scheduled Monument, SM3566, Asset 25)	High	This much-reduced cairn is located on the slope of a hill c.10.3 km south west of the nearest turbine with theoretical visibility of eight turbines. As a prehistoric cairn and ritual funerary monument, the key characteristics of its setting are based on its location on high ground with intervisibility between other contemporary burial monuments, particularly to the south east. On this basis, its setting is judged to make a contribution to the way in which the monument is understood, appreciated and experienced and it is considered to have a High sensitivity to changes in its setting.
Meishie O' Stanes, two cairns 120 m N of Collafirth Pier (Scheduled Monument, SM3568, Asset 26)	High	These two cairns are located on the slope of a small hill c.8.5 km north west of the nearest turbine with theoretical visibility of eight turbines. As these are prehistoric cairns and ritual funerary monuments their setting is based on their location on relatively low lying ground with views to the immediate south over the Colla Firth. Their setting is therefore judged to make a contribution to the way in which the monuments are understood, appreciated and experienced and they are considered to have a High sensitivity to changes in their setting.
Beorgs of Housetter, chambered cairn 730 m NW of Setter House (Scheduled Monument, SM3569, Asset 27)	High	This cairn is located on the peak of the Beorgs of Housetter ridge c.9.2 km north west of the nearest turbine with theoretical visibility of eight turbines. As a prehistoric cairn and ritual funerary monument its setting relates to its location on a peak of high ground and its intervisibility with other contemporary monuments, including Assets 8 and 34 to the immediate east at the base of the ridge. It's setting is therefore judged to make a contribution to the way in which the monument is understood, appreciated and experienced and it is considered to have a High sensitivity to changes in its setting.
Crooksetter Hill, chambered cairn at SE summit of (Scheduled Monument, SM3576, Asset 32)	High	The Scheduled Monument is located adjacent to the Site's eastern boundary c.700 m to the south of the nearest turbine. The ZTV indicates that the cairn would have visibility of eight turbines. Key characteristics of setting are considered to be views towards the Crooksetter Hill NW cairn (Asset 35), views to the south and south east from the cairn over land likely associated with it and in the direction of its likely chamber alignment, views of the cairn from the south and south east on approach and the location of the cairn on the skyline along the ridge of

Table 5.4: Summary of Receptors and Sensitivity to Setting Impacts		
Receptor	**Sensitivity**	**Justification**
		Crooksetter Hill. As a prehistoric cairn and ritual funerary monument its setting is judged to make a contribution to the way in which the monument is understood, appreciated and experienced and it is considered to have a High sensitivity to changes in its setting.
Punds Water, house and enclosure to W of, Mangaster (Scheduled Monument, SM3577, Asset 33)	Low	The monument consists of the remains of a prehistoric house and an associated enclosure wall c.10.3 km south west of the nearest turbine with theoretical visibility of eight turbines. The significance of the monument is derived primarily from its intrinsic characteristics and location close to a nearby water source and suitable agricultural resources. It is judged to be of Low sensitivity to changes beyond its immediate functional setting.
Trowie Knowe chambered cairn (Scheduled Monument, SM3578, Asset 34)	High	This cairn is located on low ground at the base of the Beorgs of Housetter ridge c.9.2 km north west of the nearest turbine with theoretical visibility of eight turbines. As a prehistoric cairn and ritual funerary monument its setting relates to its relationship with the immediate surrounding monuments (Assets 27 and 8) and low position with visibility towards the sea, and so its setting is judged to make a contribution to the way in which the monument is understood, appreciated and experienced and it is considered to have a High sensitivity to changes in its setting.
Crooksetter Hill, chambered cairn near NW summit of (Scheduled Monument, SM3608, Asset 35)	High	The Scheduled Monument is located within the Site boundary c.600 m to the south of the nearest turbine. The ZTV indicates that the cairn would have visibility of eight turbines. Key characteristics of setting are considered to be views towards the Crooksetter Hill SE cairn (Asset 32), views to the south and south east from the cairn over land likely associated with it and in the direction of its likely chamber alignment, views of the cairn from the south and south east on approach and the location of the cairn on the skyline along the ridge of Crooksetter Hill. As a prehistoric cairn and ritual funerary monument its setting is judged to make a contribution to the way in which the monument is understood, appreciated and experienced and it is considered to have a High sensitivity to changes in its setting.
The Kames, coastal defence battery 100 m SE of, Calback Ness (Scheduled Monument, SM10756, Asset 38)	Medium	This WW2 coastal defence battery is located to the north of the SVT c.2.6 km west of the nearest turbine with theoretical visibility of eight turbines. The guns and equipment have been removed from the site but the layout and operation of the battery can be relatively well understood when on site. The monument's setting is derived from its function as a military defensive feature with specific key views of the Voe to the north and north west, and as such is considered to have a Medium sensitivity to changes to its setting beyond the identified key views.
Ronas Hill, chambered cairn (Scheduled Monument, SM2043, Asset 39)	High	This cairn is located on the peak of Ronas Hill at the highest point of the Shetland Islands c.12.1 km from the nearest turbine with theoretical visibility of eight turbines. The cairn's location means it has long-range views across most of the Shetland Mainland, particularly to the south and south west. As a prehistoric cairn and ritual funerary monument its setting is judged to make a contribution to the way in which the monument is understood, appreciated and experienced and it is considered to have a High sensitivity to changes in its setting.
Lunna House (Garden & Designed Landscape, GDL00271, Asset 45)	Medium	This GDL is located on a narrow saddle of land on the West Lunna peninsula overlooking West Lunna Voe, c.9.8 km south east of the nearest turbine and with theoretical visibility of eight turbines. The GDL also includes the Chapel Knowe Scheduled Monument (Asset 9). The setting of the GDL and the key views relate to its immediate environs and the views of the West Lunna Voe and as such is considered to have a Medium sensitivity to changes to its wider setting.
Garth, Pony Pund, including Gates, and Adjoining Outbuildings (Category B Listed	Low	This Category B Listed Building is located c.2.1 km to the south of the nearest turbine with theoretical visibility of one turbine, the rest being screened by the surrounding topography. The setting of the building is based on its functionality and immediate surrounding and so is

Table 5.4: Summary of Receptors and Sensitivity to Setting Impacts		
Receptor	**Sensitivity**	**Justification**
Building, LB44527, Asset 47)		considered to have a Low sensitivity to changes to beyond this immediate setting.
The Haa, Bardister, Ollaberry (Category B Listed Building, LB44562, Asset 50)	Medium	This Category B Listed Building is located c.5.3 km west of the nearest turbine with theoretical visibility of eight turbines. The setting of the building and the key views relate to its immediate environs and the views to the north of the Gluss Voe and as such is considered to have a Medium sensitivity to changes to its wider setting.
Ulsta, Pier House (Category C Listed Building, LB18679, Asset 51)	Medium	This Category C Listed Building is located in Ulsta c.4.8 km north east of the nearest turbine with theoretical visibility of six turbines. The setting of the building and the key views relate to its immediate environs and the views of the Bay of Ulsta and harbour, and as such is considered to have a Medium sensitivity to changes to its wider setting.
Mossbank, Erlangen including Garden Wall (Category C Listed Building, LB44529, Asset 52)	Low	This Category C Listed Building is located in Mossbank c.3.0 km south east of the nearest turbine with theoretical visibility of eight turbines. The setting of the building is based on its functionality and immediate surroundings and so is considered to have a Low sensitivity to changes to its wider setting.
Mossbank, Mossbank Haa, including Outbuildings and Wall (Category C Listed Building, LB44531, Asset 54)	Low	This Category C Listed Building is located in Mossbank c.3.0 km south east of the nearest turbine with theoretical visibility of eight turbines. The setting of the building is based on its functionality and immediate surroundings and so is considered to have a Low sensitivity to changes to its wider setting.

5.5 Mitigation

5.5.1 Embedded (primary) mitigation is an inherent part of the project design and comprises measures that have influenced the location and design of the Proposed Development. Embedded mitigation would be secured through the description of the Proposed Development as part of planning consent and is described in the design evolution narrative (refer to **Chapter 3: Design Evolution and Alternatives (EIAR Volume 2)**). Standard (tertiary) mitigation comprises measures that are mandated by legislative requirements or standard best practices and would be required regardless of the outcomes of any EIA.

5.5.2 As the embedded and standard mitigation would form part of the Proposed Development, there would be no consented scenario where the mitigation measures would not be implemented. As such, the assessment of likely significant effects assumes that these mitigation measures are implemented.

5.5.3 There are no relevant standard mitigation measures for cultural heritage. The embedded mitigation measures of relevance to cultural heritage and archaeology include:

- Including a 200 m buffer zone around the known extent of the two Scheduled Crooksetter Hill cairns (Assets 32 and 35) to avoid physical impacts;
- Including a 50 m buffer zone around the known extent of the remains of the Tronaster settlement (Asset 119) to avoid physical impacts;
- Including a 10 m buffer zone, where possible, around the former field boundary (Asset 130) and possible cairns (Assets 131 and 132) to avoid physical impacts; and
- Design of the turbine layout to avoid, where possible, any turbines interfering with key sight lines between the two Scheduled Crooksetter Hill cairns (Assets 32 and 35) and the Scheduled Graven cairn (Asset 16).

5.6 Assessment of Likely Effects

5.6.1 This section describes the potential effects which might occur as a result of the Proposed Development, including the direct physical, indirect physical, setting, secondary, short term, medium and long term, permanent and temporary, beneficial and adverse effects.

Potential Construction Effects

5.6.2 Construction impacts associated with the Proposed Development include creating temporary compounds, ground clearance and preparation, laying temporary and permanent access tracks, excavation of cable trenches and bases for inverters/transformers, cut and fill excavations for the wind turbines and their crane pads, cut and fill excavations for the BESS and substation, borrow pit excavation and fencing. In addition, the measures proposed in **Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)** include Hagg reprofiling/infilling, gully and drainage ditch blocking and peat cutting reprofiling/infilling as well as construction of otter holts, wader scrapes and riparian planting. These activities could disturb, damage, or destroy known or unknown features or buried remains. These would be physical, permanent effects.

5.6.3 Whilst there is some limited potential for impacts upon the setting of designated heritage assets to occur during the construction phase, any such effects would be temporary, and it is considered that setting effects resulting from construction would not exceed the predicted operational effects upon the setting of heritage assets. As such, with the aim of achieving proportionality, the potential for setting effects is considered under operational effects.

5.6.4 The Proposed Development has been designed, where possible, to avoid direct physical impacts on known archaeological remains. **Technical Appendix 5.2: Archaeological Desk-Based Assessment (EIAR Volume 4)** has identified a High potential for previously unrecorded archaeological remains of the prehistoric period to be present within the Site. These are likely to be primarily related to the existing monuments within the Site and the agricultural use of the landscape during the post-medieval period. The Site also contains numerous areas of peat and has a High potential for the recovery of deposits of palaeoenvironmental interest.

5.6.5 **Table 5.5** below provides a summary of impacts and Levels of Effect upon the heritage receptors brought forward for assessment of physical construction effects. Where an impact has been identified, this is discussed further below.

Table 5.5: Summary of Physical Construction Effects

Asset	Importance/ Sensitivity	Magnitude of Physical Impact	Level of Effect
Crooksetter Hill north west cairn (Scheduled Monument SM3608, Asset 35)	High	None	None
Tronaster Township (Non-Designated Heritage Asset, Asset 119)	Low	None	None
Field Boundary (Non-Designated Heritage Asset, Asset 130)	Negligible	Low	Negligible
Possible Cairn (Non-Designated Heritage Asset, Asset 131)	Low	None	None
Possible Cairn (Non-Designated Heritage Asset, Asset 132)	Low	None	None
Potential previously undiscovered remains	Negligible to High	None to High	None to Major

Table 5.5: Summary of Physical Construction Effects			
Asset	**Importance/ Sensitivity**	**Magnitude of Physical Impact**	**Level of Effect**
Palaeoenvironmental remains within deep peat deposits	Medium to High	Negligible	Negligible to Minor

Field Boundary (Asset 130)

5.6.6 Whilst a 10 m buffer has been used as much as possible, the constraints of the design mean that the hardstanding for Turbine 4 and sections of the access track would have a physical permanent impact on the former field boundary (Asset 130) that runs through the northern section of the Site. Whilst the field boundary is no longer visible above ground, there may still be some below-ground remains that survive which would be considered to be of Negligible Importance. The Proposed Development would only impact upon small areas of any surviving remains of the field boundary which would lead to a minor alteration to baseline conditions and a slight loss of cultural significance which would be a Low Magnitude of Impact. This equates to a Negligible Level of Effect, which is **Not Significant** in EIA terms.

Potential Undiscovered Remains

5.6.7 The assessment has identified a High potential for previously unrecorded prehistoric remains to be present within the Site. The assessment has also identified some potential for remains associated with the crashed RAF Catalina flying boat (Asset 66) to extend within the Site. The importance of any potential remains is currently unknown. However, based on the nature and importance of known heritage assets in the Site and surrounding 1 km Study Area; any remains post-dating the prehistoric period are likely to be considered to be of Low Importance, though remains of higher importance cannot be ruled out.

5.6.8 Any prehistoric remains that may survive on Site have the potential to be of up to High Importance depending on their nature. Were such assets to be encountered and, where mitigation by avoidance or minimisation was not possible, there is potential for total or large scale removal of the asset that it would result in a substantial loss of cultural significance, which would be a High Magnitude of Impact which could potentially result in up to a **Major** Level of Effect which would be considered a **Significant** effect in EIA terms.

Peat Deposits

5.6.9 Deep peat deposits have been recorded across the Site up to a depth of 6 m. Deep peat deposits have a high potential for preservation of paleoenvironmental proxies which may inform us about past environments and may be considered to have Medium to High Importance. The majority of the layout of the Proposed Development has been designed to avoid areas of deep peat (5 m or deeper). However, a small area of Turbine 8's associated hardstanding and earthworks encroach into areas of peat with a depth of 4 m to 6 m. The loss of a very small percentage of the area of peat deposits as a result of the Proposed Development would leave cultural significance unchanged and would be a Negligible Magnitude of Impact. This would be considered to be, at worst, a Minor Level of Effect which would be **Not Significant** in EIA terms.

Potential Operational Effects

5.6.10 Operational effects include potential impacts upon the settings or character of designated assets such as Listed Buildings, Scheduled Monuments, and GDLs. Physical effects upon any known or previously unknown archaeological remains which may be present within the Site

would cease with the completion of the groundworks stage of construction and consequently no physical effects are predicted during the operational phase of the Proposed Development. Operational effects would be temporary and long term, lasting for the lifespan of the Energy Park.

5.6.11 The assessment of setting impacts has been informed by ZTV modelling, wireframes and photomontages (as presented in **Chapter 4: Seascape, Landscape and Visual (EIAR Volume 4)**) as appropriate. Where accessible, site visits were undertaken for designated heritage assets which the ZTV suggested would have intervisibility with the Proposed Development. Heritage assets which had no potential intervisibility with the Proposed Development or did not include the Proposed Development turbines within key views towards such assets, were scoped out of further assessment.

5.6.12 The assets that have been carried forward for detailed setting assessment are presented in **Technical Appendix 5.3: Setting Assessment (EIAR Volume 4)**. The detailed assessment includes a brief review of the contextual characteristics of each asset using information drawn from their designation documentation, supplemented by observations on the morphology, condition and character of each asset and the nature of their settings made during site visits undertaken in June 2024, March 2025, and September 2025.

5.6.13 Following the Scoping Report in March 2025 and subsequent consultation, HES flagged specific concerns regarding the impact of the Proposed Development to the settings of the following designated heritage assets:

- Fugla Ness broch (Scheduled Monument SM2080, Asset 6);
- Graven chambered cairn (Scheduled Monument SM3524, Asset 16);
- Crooksetter Hill south east chambered cairn (Scheduled Monument SM3608, Asset 32);
- Crooksetter Hill north west chambered cairn (Scheduled Monument SM3608, Asset 35);
- The Kames coastal defence battery (Scheduled Monument SM10756, Asset 38);
- Lunna House (Inventoried Garden and Designed Landscape GDL00271, Asset 45); and
- West Sandwick House (Category A Listed Building LB18648, Asset 46).

5.6.14 Those assets that have been identified as having a significant Level of Effect are discussed in detail below. Assets which have been identified by consultees are also assessed in detail below, whether or not a significant effect has been found. All other assets, for which no significant effect has been found, are assessed in **Technical Appendix 5.3: Setting Assessment (EIAR Volume 4)**. The plates referenced in the summaries below are shown in **Technical Appendix 5.5: Plates (EIAR Volume 4)**. Where impacts are concluded to be not significant (a Minor Level of Effect or less), these impacts will not be considered further within the EIAR, other than those identified by consultees and discussed below.

Fugla Ness broch (SM2080; Asset 6)

5.6.15 The monument comprises the remains of an Iron Age broch, with outer buildings, protected to the landward side by a double bank and ditch. The broch survives within a mound of rubble to a height of at least 2 m, and on the seaward side is the upper part of the entrance passage and the tops of two flanking cells, which have been dug into at some time. To the immediate south of the broch mound are the remains of a substantial sub-rectangular building, possibly of similar date, and slight traces around the mound suggest that other building foundations may lie nearby. The broch and these other remains lie on a flat platform, cut off from the landward side by a deep ditch and double bank, made of earth and rubble. The sea has encroached upon the asset to the east, and the outer face of the broch is beginning to be

undermined, although at the time of the site visit in March 2025 the broch was still relatively clearly laid out.

5.6.16 This broch is one of over 130 known in Shetland. These brochs have been viewed as having a defensive or offensive function, or simply as being the prestige dwellings of an elite class keen to display its status[22]. The broch's setting is based on its function as a defensive monument located on the east coast of the Shetland Mainland. The broch has extensive views across the Yell Sound from the Mainland towards Yell and other islands within the Sound, particularly to the east and south east. Intervisibility with other broadly contemporary brochs, in particular the Holm of Copister broch (Asset 7) to the east, may have also been important and forms a key characteristic of the broch's setting, contributing to its significance. Therefore, this Scheduled Monument is considered to have a High sensitivity to changes to its setting.

5.6.17 The broch is located c.1.9 km east of the nearest turbine on the shore of Yell Sound with theoretical visibility of eight turbines. Although close to the Site, the topography would prevent visibility of all but the tips of the turbines (**Figure 5.5a-f: CHVP1a: SM2080 Fugla Ness Broch (EIAR Volume 3b)**) and the key views from the broch are to the east across the Sound, and so the turbines would not appear in these views. The turbines would appear in the backdrop behind the Fugla Ness broch in one of the key views from the west of the Holm of Copister broch (**Figure 5.6a-f: CHVP1b: Fugla Ness broch from Yell Sound (EIAR Volume 3b), Figure 5.7a: CHVP2a: SM2091 Holm of Copister broch – wireline (EIAR Volume 3b),** and **Figure 5.8a-f: CHVP2b: SM2091 Holm of Copister broch – photomontage (EIAR Volume 3b)**), although they would not interfere with the intervisibility between the two monuments and the understanding and appreciation of the Fugla Ness broch and its relationship with the Holm of Copister broch would not be substantially impacted. The Proposed Development would therefore not reduce the ability to understand, appreciate, and experience these key views or affect the contribution that setting makes to the monument's overall significance.

5.6.18 The Proposed Development, therefore, would result in a low adverse change from baseline conditions, which would be considered to be Low Magnitude of Impact and therefore a Minor Level of Effect. This is considered **Not Significant** in EIA terms. There would be no significant adverse impact upon the integrity of the asset's setting in terms of NPF4[23].

Graven chambered cairn (SM3524; Asset 16)

5.6.19 The chambered cairn at Graven (**Plate 5.9**) was Scheduled in 1974, having previously been visited by the Royal Commission on Ancient and Historical Monuments of Scotland (RCAHMS) in the 1930s[24] and described and illustrated by Henshall in the 1960s[25]. The monument comprises a chambered round cairn of Neolithic date. The cairn at the time of Henshall's recording measured 10.6 m in diameter and 1.5 m in height above the peat, though it is evident that peat has encroached on the monument and it now survives to an apparent lower height[25].

5.6.20 The cairn as it now survives in the landscape is a circular tumble of stones and is approximately 10 m in diameter. The cairn is somewhat denuded, but the chamber is still visible, and the major architectural features survive. The chamber is rectangular in shape and located slightly

[22] Mackie, E. W. (2002). *The roundhouses, brochs and wheelhouses of Atlantic Scotland c.700BC-AD500: architecture and material culture, Part 1: The Orkney and Shetland Isles*. BAR British Series 342: Oxford. 116-7.

[23] Scottish Government (2023). *National Planning Framework 4, Policy 7h, 46*. Available at: https://www.gov.scot/publications/national-planning-framework-4/ [Accessed 02/03/2026].

[24] The Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS) (1946). *Twelfth report with an inventory of the ancient monuments of Orkney and Shetland, 3v*. Edinburgh, 10-11, No.1121.

[25] Henshall, A. S. (1963). *The Chambered Tombs of Scotland, Volume 1*. Edinburgh: University Press.

south of the centre of the cairn. It measures circa 1.5 m long by 1 m wide and deep. On the west side of the chamber a large slab, aligned north-south, is visible. The east side of the chamber curves back in a knuckle with in-situ stone slabs. Collapse of the chamber at the north side might indicate that the chamber continued to the north. The second hollow to the south appears to be superficial and may have been caused by people trying to locate the entrance. It is unlikely that the entrance would be to the south as the local horizon is too close[25]. Two well set slabs to the south indicate that the entrance was to the north rather than the south as suggested by RCAHMS[24].

5.6.21 The cairn is located in the shoulder of a steep concave hill, well bedded into the slope. The concave shape of the hill means that the monument is only visible locally and difficult to locate at a distance of greater than 200 m. The cairn commands distant prospects from east to north to west across a complex industrial landscape featuring a former airport, oil terminal and harbour (**Plate 5.10**). The local horizon to the south is 200 m away at most and thus views across the wider landscape are restricted in this direction.

5.6.22 The cairn is clearly set at the north west extent of a shoulder of the Hill of Graven and topography directs views to the north west and west over Garth Voe, Voe of Scatsca, and Sullom Voe beyond (**Plate 5.10**). These views currently include the harbour at Sella Ness and the SVT and Shetland Gas Plant on the opposite side of Garth Voe. The Crooksetter Hill cairns (Assets 32 and 35), and particularly the north west Crooksetter Hill Cairn (Asset 35), are visible to the north east punctuating the ridgeline formed by Hill of Crooksetter (**Plate 5.9**).

5.6.23 The location of the cairn, on the shoulder of a hill overlooking the voes to the north west, indicates that it was placed deliberately within the landscape to afford views particularly to the north and north west. The indication of an entrance to the north also indicates a key sightline in this direction. Likely views towards it from the voes and lower lying land to the north and north west would have also been important; though the current height of the monument precludes any views of it unless in close proximity. Intervisibility with other broadly contemporary assets of the same type, such as the Crooksetter Hill chambered cairns, may have also been important. Whilst the current landscape features a number of large industrial developments, as noted above, these are largely low lying and do no prevent an understanding and appreciation of the significance of the asset and the reasons for its siting. On this basis, the asset is deemed to have High sensitivity to changes to its setting.

5.6.24 The Scheduled Monument is located south west of the Site, c.3.9 km from the nearest proposed turbine, and according to the ZTV would theoretically have visibility of eight turbines and the visualisations (**Figure 5.9a: CHVP3: SM3524 Cairn at Hill of Graven (EIAR Volume 3b)**) show how the turbines would appear in views from the cairn. The Proposed Development would be located behind the ridgeline created by Hill of Crooksetter and would not impact upon the relationship between the cairn and the coast and voes, which form a key characteristic of the monument's setting. Whilst the turbines would be visible in views to the north and north east they would clearly be set beyond the intervening ridgeline, and the layout of the Proposed Development has been designed avoid any turbines falling directly behind the line of sight from the Graven cairn to the two Crooksetter Hill cairns (Assets 32 and 35).

5.6.25 The Proposed Development, therefore, would result in a Medium adverse change from baseline conditions, as it would represent an alteration of an asset's baseline setting that affects the ability to understand, appreciate and experience the contribution that setting makes to the significance of the asset to a degree but the cultural significance of the monument in its current setting remains understandable. This would be a Medium Magnitude of Impact and therefore would result in a **Moderate** Level of Effect. This is considered **Significant** in EIA

terms. The key characteristics of the setting of the cairn, including its interrelationship with monuments in the landscape and its topographical setting, would be adequately retained, and thus the identified adverse effect would not result in a significant adverse impact on the integrity of the asset's setting in terms of NPF4[23].

Crooksetter Hill south east chambered cairn (SM3576; Asset 32)

5.6.26 The south east cairn at Hill of Crooksetter (Asset 32; **Plate 5.2**) was Scheduled in 1974 and the Scheduled area was amended in 1996. The monument comprises a heel-shaped chambered cairn of Neolithic or possibly early Bronze Age date. At the time of the original Scheduling, the cairn was described as being rather ruinous and appeared to be recessed into the slope of the hill[25]. The cairn measures 11.5 m across its façade and 9.1 m from the façade to the back of the cairn. The cairn has seen significant disturbance to its centre and its current condition is such that the location of an entrance passage or any detail of internal architecture cannot be discerned from a site visit alone. The designation description indicates that the façade faces south east. It is not possible to determine the original height of the cairn which has been heightened in relatively recent times by the addition of a modern walker's cairn.

5.6.27 The location of the cairn along the ridge of Crooksetter Hill and current peat encroachment mean that the cairn is often difficult to discern from the wider landscape. The break of slope of Crooksetter Hill means that the cairn is largely only visible from the area to the south of the Sand Water and from within the saddle to the south east of Hill of Garth through which the modern road runs. The break of slope below the cairn means that it not visible when travelling up slope until one is nearly at the top and similarly it is rarely visible from the area around the B9076 due to the lower lying ridge extending eastwards from Hill of Garth. More distant views towards the cairn from the south are possible, where the topography begins to rise. However, the south east cairn itself is difficult to distinguish from these more distant locations given the peat encroachment. Indeed, the location of the cairn is largely recognisable by its relationship with the natural rock outcrop below it and the modern memorial (Asset 132) to the east.

5.6.28 The summit of the Hill of Crooksetter itself largely prohibits views to the north and north west, with the ridgeline and the north west Crooksetter Hill cairn (Asset 35) forming the skyline in this direction (**Plate 5.12**). Views to the west (**Plate 5.11**) take in SVT with the flare stacks located within 1 km. Views to the south west take in portions of Garths Voe and the Hill of Graven, though the coastline itself is largely obscured by the lower, but intervening Hill of Garth (**Plate 5.13**). The widest views are located to the south and south east and take in the Sand Water and Neshion Water respectively (**Plate 5.14**), indicating that the cairn may have been sited mainly to look over these features and lower lying ground around them. The north west Crooksetter Hill Cairn (Asset 35) is visible further along the ridgeline (**Plate 5.2**) and the view between the two can be considered a key characteristic of the asset's setting.

5.6.29 As a chambered cairn sited specifically to be seen and to overlook the surrounding landscape, the Crooksetter Hill south east cairn is considered to have High sensitivity to changes to its setting. Key characteristics of its setting which contribute to its cultural significance include:

- Views between this and the north west Crooksetter Hill cairn (Asset 35);
- Views to the south and south east from both Crooksetter Hill cairns over land likely associated with them and in the direction of their likely chamber alignments;
- Views of the cairn from the southern and south eastern approaches; and
- The locations of the cairn on the skyline along the ridge of Crooksetter Hill, above natural rock outcrops.

5.6.30 These key characteristics contribute to our understanding of the placement of both of the Crooksetter Hill cairns in the landscape as well as more broadly to the understanding and appreciation of the placement of Neolithic burial monuments in prominent locations, commanding extensive views and from which they could be seen from the surrounding landscape. The likely alignment of the chambers of Neolithic burial monuments indicates particular importance of views in certain directions, in the case of the Crooksetter Hill cairns, to the south east.

5.6.31 Views to the south and south east from both Crooksetter Hill cairns would not feature the Proposed Development and as such the Proposed Development would not impact upon these key views.

5.6.32 Views from the centre of the south east Crooksetter Hill cairn (**Figure 5.11a-f: CHVP5: SM3576 Crooksetter Hill south east chambered cairn (EIAR Volume 3b)**) would include the hub and full rotor of eight of the Proposed Development turbines, which would be located at a distance of c.900 m, at their nearest point. All of the turbines would be located beyond the ridge of Crooksetter Hill. When viewed from the centre of the south east Crooksetter Hill cairn, Turbine 1 would appear behind the north west Crooksetter Hill cairn (Asset 35), albeit slightly offset from the centre of the cairn. As the Turbine would feature directly in a view (the view between the two cairns) identified as being a key characteristic of the assets' setting which contributes to their significance there would be some loss of cultural significance. However, it should also be noted that the location of the turbine behind the north west Crooksetter Hill cairn would not obscure the view between the cairns and, as **Figure 5.11a-f: CHVP5: SM3576 Crooksetter Hill south east chambered cairn (EIAR Volume 3b)** indicates, the north west Crooksetter Hill cairn would still be readily discernible as a prehistoric hilltop cairn, which remains a prominent feature in this view. It should further be noted that views from the centre of the south east Crooksetter Hill cairn are unlikely to have been possible when the cairn was constructed and in use and when the cairn stood at full height as this location would have formed either the interior or the top of the cairn structure. However, it has been noted by HES in consultation that the loss of material has enhanced the key visual relationship between the cairns in the present day. **Figure 5.17a-f: CHVP10: SM3576 Crooksetter Hill south east chambered cairn – view across the cairn (EIAR Volume 3b)**, taken from the east of the south east Crooksetter Hill cairn, indicates that whilst Turbine 1 would still appear prominently in close proximity to the north west Crooksetter Hill cairn it would not be directly juxtaposed. Turbines would only feature very peripherally in views from the north west Crooksetter Hill cairn to the south east Crooksetter Hill cairn.

5.6.33 As noted above, views towards the cairn, particularly from the south and south east, are also considered to be key characteristics of their setting. **Figure 5.18a-f: CHVP11: View from the south on approach to the Crooksetter cairns (EIAR Volume 3b)**, taken from a location east of Hill of Garth and the modern road, indicates that all of the turbines would be seen beyond the ridge of Crooksetter Hill, though Turbine 1 at the far west of the Site would be seen nearly to full height. All of the turbines would be located to the left (west) of the south east Crooksetter Hill cairn in this view and would be offset from it. However, it is of note that this is one of the locations from which the south east Crooksetter Hill cairn is difficult to discern given the encroachment of peat.

5.6.34 Given the likely alignment of the passages from both of the Crooksetter Hill cairns to the south east, views of the cairns from the lower lying ground in this direction have also been identified as a key characteristic of their settings. **Figure 5.19a-f: CHVP12: View from the vicinity of the lochans (EIAR Volume 3b)** presents the view from south of Sand Water, which

already includes the flare stack associated with Sullom Voe. This photomontage indicates that turning blades would be visible behind both cairns, with full blades of Turbine 8 appearing behind the south east Crooksetter Hill cairn (Asset 32). The presence of turbines in this view could prove distracting and would alter and potentially diminish the experience of the cairns as horizon features from this specific location. Given that this view, from the south east in general, has been identified as a key characteristic of setting, it is considered that there would be some loss of cultural significance. However, consideration needs to be given to the fact that these visualisations represent views from static locations, and worst-case scenarios, and that the reality of the experience of both of the cairns and their settings would be a transitory one in which the cairns would come into and out of view. The way in which the turbines would be seen backdropping and in conjunction with the cairns would also change. It should also be noted the presence of the modern Sullom Voe Monument (Asset 133) can be considered to be a more prominent feature on the ridge, given its shape and location it draws the eye from views of the cairns in the present day setting, particularly the south east Crooksetter Hill cairn which has been encroached on by peat and which the modern monument sits adjacent to. The overall experience of the cairns as one moves throughout the landscape therefore needs to be considered in coming to an assessment of the overall Magnitude of Impact and Level of Effect.

5.6.35 Overall it is considered, given the proximity of the turbines to the cairn, their size, and their kinetic nature, that in some views, most particularly when looking towards the north west Crooksetter Hill cairn from the south east Crooksetter Hill cairn, and in views from the vicinity of Sand Water towards both of the cairns, the Proposed Development would form a distracting feature which could diminish the ability to appreciate and experience the prominent location in which the cairns are sited. Taking the contribution of setting on the whole to the cultural significance of each monument and considering how and which of the key characteristics could be adversely affected by the Proposed Development, some reduction to cultural significance is expected.

5.6.36 However, there would be limited impacts upon many of the key characteristics of setting, as outlined above, and overall, the cultural significance of the Crooksetter Hill south east cairn and the contribution that setting makes to this significance would be adequately retained. That is, the asset would still retain the ability to be understood, appreciated and experienced as a prehistoric burial monument located on a prominent ridgeline. The relationship between this and the north west Crooksetter Hill cairn (Asset 35) would not be obscured and key views to south east would not be impacted. Further it is noted that the intrinsic value of the assets which contributes to their overall significance would not be adversely impacted.

5.6.37 The Proposed Development, therefore, would result in a Medium adverse change from baseline conditions, which would be considered a Medium Magnitude of Impact and therefore a **Moderate** Level of Effect on the south east Crooksetter Hill cairn. In line with the methodology set out in **Technical Appendix 5.1: Cultural Heritage Assessment Methodology (EIAR Volume 4)** this is because the Proposed Development would result in alteration to the asset's baseline setting that that would affect the ability to understand, appreciate and experience the contribution that setting makes to the significance of the asset to a degree but the cultural significance of the monument in its current setting would remain understandable. The key characteristics of the setting would be partially eroded; there would be some loss of cultural significance. This is considered **Significant** in EIA terms. The key understanding of the cairn, the interrelationship with the north west Crooksetter Hill cairn, and the topographical settings would remain understandable. Whilst there would be some loss of cultural significance it is considered that on balance there would be sufficient retention of the key characteristics of the

setting of the cairn such that the ability to understand, appreciate and experience the asset and the contribution that setting makes to its significance would be adequately retained and thus would not result in a significant adverse impact upon the integrity of the asset's setting in terms of NPF4[23].

Crooksetter Hill north west chambered cairn (SM3608; Asset 35)

5.6.38 The north west cairn on the Hill of Crooksetter (**Plate 5.4**) was Scheduled in 1975. The monument comprises a heel-shaped chambered cairn of Neolithic or possibly early Bronze Age date. At the time of the Scheduling, the cairn was described as rather ruinous with no definite signs of a chamber, but this may be obscured by the modern marker cairn[25]. The cairn is built on an outcrop of white quartz at the north west end of Crooksetter Hill overlooking Sullom Voe to the west and Toft and the south tip of Yell to the east. The summit of Crooksetter Hill is grassy, lower down there is good peat bog dominated by heather. Large, jagged boulders of white quartz have been used to build the cairn. The monument comprises a mound with a diameter of 15 m, with some white quartz boulders around the edge, and a cairn on top of the mound built of large stones with a diameter of 6 m and a height of 2 m. There seems to be a facade on the south east side, again of large white quartz boulders, and this may indicate a likely alignment for the cairn and its chamber. To the south of the cairn there are a lot of large boulders and a quartz rock outcrop. There is a lot of bare earth around the central cairn resulting from it being used by sheep for shelter. A similar heel-shaped cairn is located c.360 m to the south east (Asset 32).

5.6.39 The cairn is located at the western edge of the ridge and just below the summit of the Hill of Crooksetter. Views to the east and south east are limited by the hill's own ridgeline, though Yell Sound is visible beyond (**Plate 5.15**). SVT and Shetland Gas Plant, including nearby flare stacks, dominate views to the west, with Sullom Voe beyond (**Plate 5.16**). Views to the south include Hill of Garth in the foreground and the higher hills south of Graven beyond. The most extensive views are to the north and north west across a broad U-shaped valley in which the Aywick Burn flows into Orka Voe (**Plate 5.17**). The views stretch across the seascape and include the islands of Little Roe and Lamba with North Roe visible beyond.

5.6.40 The cairn sits atop the ridge and so is visible from the south and south east, including from Graven cairn (Asset 16) (**Plate 5.18**). As described for south east Crooksetter Hill cairn (Asset 32), views of the cairn from the south are limited to locations south of Sand Water and the noted saddle, as the break of slope in Crooksetter Hill itself, and the ridge extending east from Hill of Garth obscure views of the cairn from much of this area. The cairn can clearly be seen from the south east Crooksetter Hill Cairn (Asset 32) (**Plate 5.2**) and vice versa (**Plate 5.19**) and the view between the two can be considered a key characteristic of the asset's setting.

5.6.41 As noted above, as chambered cairns sited specifically to be seen and to overlook the surrounding landscape, both Crooksetter Hill cairns are considered to have High sensitivity to changes to their setting. Key characteristics of their setting which contribute to their cultural significance include:

- Views between this and the south east Crooksetter Hill cairn (Asset 32);
- Views to the south and south east from both of the cairns over land likely associated with them and in the direction of their likely chamber alignments;
- Views of the cairn from the southern and south eastern approaches; and
- The locations of the cairn on the skyline along the ridge of Crooksetter Hill, above natural rock outcrops.

5.6.42 These key characteristics contribute to our understanding of the placement of the cairn in the landscape as well as more broadly to the understanding and appreciation of the placement of Neolithic burial monuments in prominent locations, commanding extensive views and from which they could be seen from the surrounding landscape. The likely alignment of the chambers of Neolithic burial monuments indicates particular importance of views in certain directions, in the case of both of the Crooksetter Hill cairns, to the south east.

5.6.43 Views to the south and south east from both Crooksetter Hill cairns would not feature the Proposed Development and as such the Proposed Development would not impact upon these key views.

5.6.44 Views from north west Crooksetter Hill cairn (Asset 35) directly north towards the Proposed Development would feature eight turbines from base to tip (**Figure 5.12a-f: CHVP6: SM3608 Crooksetter Hill north west chambered cairn (EIAR Volume 3b)**) with the nearest turbine being located c.600 m to the north. The turbines would appear prominently in this view, within the U-shaped valley and looking from the cairn down towards Orka Voe. However, this view is considered to make a limited contribution to the setting and cultural significance of the north west Crooksetter Hill cairn given its likely south east alignment. Views from the south east of the north west Crooksetter Hill cairn, from the area of the forecourt, include the SVT and the existing flare stack. As **Figure 5.16a-f: CHVP9: SM3608 Crooksetter Hill north west chambered cairn – forecourt of the cairn (EIAR Volume 3b)** indicates, three of the proposed turbines would be seen offset to the right (north) of the Sullom Voe complex and would be peripheral to the view along the likely chamber alignment.

5.6.45 As noted above, views towards both of the cairns, particularly from the south and south east, are also considered to be key characteristics of their setting. **Figure 5.18a-f: CHVP11: View from the south on approach to the Crooksetter cairns (EIAR Volume 3b)**, taken from a location east of Hill of Garth and the modern road, indicates that all of the turbines would be seen beyond the ridge of Crooksetter Hill, though only Turbine 1 at the far west of the Site would be seen nearly to full height. The north west Crooksetter Hill cairn appears prominently on the horizon above the natural rock outcropping, as seen on **Figure 5.18a-f: CHVP11: View from the south on approach to the Crooksetter cairns (EIAR Volume 3b)**. The majority of the turbines would be located to its left (west); with only the blades of Turbine 7 appearing to the right (east). Whilst the view would be altered, the Proposed Development would not obscure the relationship of the two cairns along the ridge line, nor their relationship with the lower lying ground to the south. The north west Crooksetter Hill cairn would still be a prominent skyline feature in this view and would still be understandable and appreciable as a prehistoric funerary monument (insofar as is possible at this distance). It would still be possible to stand at this location and experience the open moorland foreground setting of the cairns and the distinctive ridgeline upon which they are set, albeit within a landscape which already features extensive modern industrial development.

5.6.46 **Figure 5.18a-f: CHVP11: View from the south on approach to the Crooksetter cairns (EIAR Volume 3b)** also indicates the route of the proposed access track. This would cross the ridge created by Crooksetter Hill to the west of the cairn. However, it should be noted that the appearance of the track on **Figure 5.18a-f: CHVP11: View from the south on approach to the Crooksetter cairns (EIAR Volume 3b)**, and other visualisations, is only intended here to indicate the route of the track and it does not reflect how the track would look in the landscape once complete. The proposed track would cross varied terrain meaning there would be cut and fill along its length. The visible width of track would therefore vary and the edges of the track would appear irregular and partly hidden by vegetation which would

be replaced in places after the main track alignment has been constructed. The varied cut and fill and edge treatment of the track would break up the strong linear edge depicted in the visualisations. The track surface and exposed earthworks would also weather over time reducing the contrast with adjacent dark moorland. As has been noted previously the break of the southern slope of Crooksetter Hill means that the cairns are not visible from much of the slope on ascent/descent and similarly it is likely that much of the track would be obscured in the views south from the cairn to the slope. Though it is acknowledged that that the track would be visible from the cairn as it crosses the summit of the Crooksetter Hill ridge, and with the turbines to the north (as shown in **Figure 5.12a-f: CHVP6: SM3608 Crooksetter Hill north west chambered cairn (EIAR Volume 3b)** and **Figure 5.16a-f: CHVP9: SM3608 Crooksetter Hill north west chambered cairn – forecourt of the cairn (EIAR Volume 3b)**) and along at its southern extents where it rises towards the summit of Hill of Garth to join the existing road. Furthermore, **Figure 5.18a-f: CHVP11: View from the south on approach to the Crooksetter cairns (EIAR Volume 3b)** indicates the track would be visible in views to the cairn from the south. Given the low lying nature of the track, and its location largely below the break in slope of Crooksetter Hill, it would not challenge the cairn for prominence, nor would it affect the relationship between this and the south east cairn or affect views from the cairn along its probable alignment to the south east or in views from the south east. Whilst it would be visible from the south, once complete it is likely to blend in with the surrounding hillside more than is indicated by **Figure 5.18a-f: CHVP11: View from the south on approach to the Crooksetter cairns (EIAR Volume 3b)** due to variations in topography and vertical alignment of the track obscuring its linear appearance and the effects of weathering reducing contrast with adjacent vegetation. The track would therefore not distract from this view any more than the existing roads, fencing, and other infrastructure associated with the Sullom Voe complex. As such it is not considered that the access track would considerably increase the impact upon the setting of the asset, though it has been taken into consideration when arriving at the assessment of the overall Magnitude of Impact and Level of Effect as set out below.

5.6.47 Given the likely alignment of the passages from both Crooksetter Hill cairns to the south east, views of the cairns from the lower lying ground in this direction have also been identified as a key characteristic of their settings. **Figure 5.19a-f: CHVP12: View from the vicinity of the lochans (EIAR Volume 3b)** presents the view from south of Sand Water, which already includes the flare stack associated with Sullom Voe. This photomontage indicates that turning blades would be visible behind both cairns, with full blades of Turbine 8 appearing behind the south east Crooksetter Hill cairn (Asset 32) and a small portion of the blades of Turbine 2 appearing behind the north west Crooksetter Hill cairn. The presence of turbines in this view could prove distracting and would alter and potentially diminish the experience of the cairns as horizon features from this specific location. Given that this view, from the south east in general, has been identified as a key characteristic of setting, it is considered that there would be some loss of cultural significance. However, consideration needs to be given to the fact that these visualisations represent views from static locations, and worst-case scenarios, and that the reality of the experience of both of the cairns and their settings would be a transitory one in which the cairns would come into and out of view. The way in which the turbines would be seen backdropping and in conjunction with the cairns would also change. It should also be noted the presence of the modern Sullom Voe Monument (Asset 133) can be considered to be a prominent feature on the ridge given its shape and it currently detracts from some views of the cairns in the present day setting. The overall experience of the cairns as one moves throughout the landscape therefore needs to be considered in coming to an assessment of the overall Magnitude of Impact and Level of Effect.

5.6.48 Overall it is considered, given the proximity of the turbines to the cairn, their size, and their kinetic nature, that in some views, most particularly when looking towards the north west Crooksetter Hill cairn from the south east Crooksetter Hill cairn, and in views from the vicinity of Sand Water towards the cairn, the Proposed Development would form a distracting feature which could diminish the ability to appreciate and experience the prominent location in which the cairn is sited. Taking the contribution of setting on the whole to the cultural significance of the monument and considering how and which of the key characteristics could be adversely affected by the Proposed Development, some reduction to cultural significance is expected.

5.6.49 However, there would be limited impacts upon many of the key characteristics of setting, as outlined above, and overall, the cultural significance of the cairn and the contribution that setting makes to this significance would be adequately retained. That is, the asset would still retain the ability to be understood, appreciated and experienced as a prehistoric burial monument located on a prominent ridgeline. The relationship with the south east Crooksetter Hill cairn (Asset 32) would not be obscured and key views from the cairn to south east would not be impacted. Further it is noted that the intrinsic value of the assets which contributes to their overall significance would not be adversely impacted.

5.6.50 The Proposed Development, therefore, would result in a Medium adverse change from baseline conditions, which would be considered a Medium Magnitude of Impact and therefore a **Moderate** Level of Effect on the north west Crooksetter Hill cairn. In line with the methodology set out in **Technical Appendix 5.1: Cultural Heritage Assessment Methodology (EIAR Volume 4)** this is because the Proposed Development would result in alteration to the asset's baseline setting that that would affect the ability to understand, appreciate and experience the contribution that setting makes to the significance of the asset to a degree but the cultural significance of the monument in its current setting would remain understandable. The key characteristics of the setting would be partially eroded; there would be some loss of cultural significance. This is considered **Significant** in EIA terms. The key understanding of the cairn, the interrelationship with the south east Crooksetter Hill cairn (Asset 32) and the topographical setting would remain understandable. Whilst there would be some loss of cultural significance it is considered that on balance there would be sufficient retention of the key characteristics of the setting of the cairn such that the ability to understand, appreciate and experience the asset and the contribution that setting makes to its significance would be adequately retained and thus would not result in a significant adverse impact upon the integrity of the asset's setting in terms of NPF4[23].

Kames coastal defence battery (SM10756; Asset 38)

5.6.51 The monument comprises a World War II coastal defence battery sited on the western side of Calback Ness, facing Gluss Isle and Bardister Ness, and with commanding views over the important deep-water anchorage of Sullom Voe to the west and south west. The battery was established during the early stages of the conflict. It was armed with two 4-inch guns taken from the Ness of Sound coastal battery in August 1940, when the latter was being re-armed with 6-inch guns. The guns were removed in 1944. The monument includes the remains of a number of above ground and subterranean structures including the main Battery Observation Post (OP), two gun emplacements, and magazines, all connected via a series of underground tunnels. Although equipment has all been removed the structures remain in good condition except for one of the tunnels which has partially collapsed. The monument is an extremely well-preserved example of World War II coastal defence battery. It is certainly the best example of its type in Shetland. It is of particular interest because of the remarkable survival

of contemporary graffiti cartoons, which brings an unusual degree of contact with the individual users of the monument.

5.6.52 The monument's setting is based on its functional operation as a modern defensive site. The guns and equipment have been removed from the battery site, but the layout and operation of the battery can be relatively well understood from the remaining structures. The buildings are aligned looking to the north west with a 180-degree field of view from within the OP and the two gun emplacements from the north east to the south west. These are the key views based on the function of the site: to provide defence of the Sullom Voe RAF base against air attacks. The buildings all provide views of the Voe and there are no views in the direction of the Proposed Development. From within the standing structures, there is no outward visibility other than in the direction of the Voe. The monument is considered to have Medium sensitivity to changes to its setting.

5.6.53 The battery is located west of the Site, c.2.6 km from the nearest proposed turbine, and according to the ZTV would theoretically have visibility of eight turbines. The turbines would appear visible from outside the monument but not from within the buildings or structures themselves. The turbines would also appear visible when looking towards the monument from boats entering Sullom Voe (**Figure 5.14a: CHVP8a: SM10756 The Kames coastal defence battery SM10756 – wireline (EIAR Volume 3b)** and **Figure 5.15a-f: CHVP8b: SM10756 The Kames coastal defence battery SM10756 – view from Gluss Ayre (EIAR Volume 3b)**), however, these are not key views and do not form key characteristics of the monument's setting, as the buildings themselves would have originally been heavily camouflaged to prevent visibility from the air and sea. The buildings are barely visible from the land on the other side of the Sullom Voe (**Figure 5.15a-f: CHVP8b: SM10756 The Kames coastal defence battery SM10756 – view from Gluss Ayre (EIAR Volume 3b)**). Any views towards the monument from either Sullom Voe or the land to the north west would also include the large industrial buildings of the SVT and gas terminals. Therefore, whilst the turbines would appear visible when looking toward the monument, they would not impact the key views from the monument or impact on the ability to appreciate and understand the contribution that setting makes to the monument's significance.

5.6.54 The Proposed Development, therefore, would result in a low adverse change from baseline conditions, which would be considered to be a Low Magnitude of Impact and therefore a Minor Level of Effect. This is considered **Not Significant** in EIA terms. There would be no significant adverse impact upon the integrity of the asset's setting in terms of NPF4[23].

Lunna House (GDL00271; Asset 45)

5.6.55 This Inventoried Garden and Designed Landscape (GDL) is probably the best surviving example of a formal designed landscape laid out in characteristic Shetland style with garths, walled enclosures, eyecatchers and ancillary buildings situated in a direct relationship to one another. It was laid out in the mid-17th century as part of the grounds of the Category B Listed Lunna House (LB18591), a Laird's house (haa) built in 1660 which is believed to be located on the site of an earlier medieval haa. The mid-17th century layout was increasingly formalised and ornamented during the early 18th and early 19th centuries, accompanying major additions to the house. In the early 19th century innovative features and Gothic ornaments were added, including the construction of Lunna harbour and pier and its adjacent beehive-shaped lime kiln, along with the Walled Garden.

5.6.56 The House and designed landscape are situated at the isthmus of the Lunna peninsula, with the House sited on high ground to the north, and follies and eyecatchers situated on high

ground, opposite to the south. From these highpoints there are extensive views over Lunna Sound to the west and Vidlin Voe to the east. The GDL also includes the Chapel Knowe Scheduled Monument (Asset 9). The GDL's setting and key views relate to its immediate environs and the relationship between its component features and the views of the Lunna Sound and Vidlin Voe.

5.6.57 The GDL is located c.9.8 km south east of the nearest turbine with theoretical visibility of eight turbines. Although weather conditions prevented an accurate assessment of the visibility during the site visit, the ZTV and position of the monument suggests that eight of the turbines would be visible, though likely only the turbine tips. If the turbines were visible, the distance between the Site and the GDL would place the proposed turbines beyond those aspects of the asset's setting which contribute to the ability to understand, appreciate and experience its significance. The Proposed Development would therefore not impact the key characteristics or affect the ability to understand, appreciate, and experience the contribution that setting makes to the GDL's overall significance.

5.6.58 The Proposed Development, therefore, would result in a low adverse change from baseline setting, which would be considered to be a Low Magnitude of Impact and therefore a Minor Level of Effect. This is considered **Not Significant** in EIA terms.

West Sandwick House including Walled Garden, Gates, and Pier (LB18648; Asset 46)

5.6.59 This Category A Listed Building, also known as North Haa, is a Laird's house (haa) built in the 17th century with an addition of circa 1770, both of which were remodelled in 1830. The present house was created by John Ogilvy of Quarff soon after his marriage, in 1829, to Barbara Grace Robertson who was heiress to the estate. Ogilvy rebuilt the older house and added the classical details and pavilions to the front block which is likely to have been a standard large Shetland haa of three bays with high wallhead concealing a garret. The formal arrangement of garden seems to also date from the remodelling, with the design centring on the south block. This includes the semicircular enclosure to the north which adjoins, but otherwise ignores, the north block. The pier is perhaps Shetland's finest example of a domestic pier. Viewed from the main road, West Sandwick House provides a spectacular focus to this part of western Yell and indicates the impact the tall lowland design that the haa's once had throughout Shetland[26].

5.6.60 The House is located 10.4 km north east of the nearest turbine and falls outwith the ZTV, although the northern corner of the garden and the approach to the House would have theoretical visibility of the one of the turbines. The key view from the House is to the south overlooking Southladie Voe and the West Sandwick peninsula, however the topography of the peninsula prevents any visibility of the Proposed Development from the House and where the grounds of the House fall within the ZTV the distance between the Site and the House would place the proposed turbines well beyond those aspects of the asset's setting which contribute to the ability to understand, appreciate and experience its significance. The Proposed Development would therefore not impact the key characteristics or affect the ability to understand, appreciate, and experience the contribution that setting makes to the Listed Building's overall significance.

5.6.61 The Proposed Development, therefore, would result in a no change from baseline setting. There would be **no impact** or effect on the setting of the asset.

[26] Ritchie, A. (2002) *Shetland: Exploring Scotland's Heritage, 2nd edition.* Edinburgh: Mercat Press. 65

Potential Cumulative Construction Effects

5.6.62 There are no potential cumulative construction effects on any heritage assets.

Potential Cumulative Operational Effects

5.6.63 The assessment of cumulative operational effects has been undertaken in a similar manner to that of the operational effects for the Proposed Development using the methodology and criteria presented in **Technical Appendix 5.1: Cultural Heritage Assessment Methodology (EIAR Volume 4).** Cumulative operational effects have only been specifically considered for those heritage assets for which the Magnitude of Impact upon setting is Low or above. This is because where the Magnitude of Impact from the Proposed Development alone is considered to be Negligible or less, adding it to a theoretical cumulative baseline is unlikely to result in a significant cumulative effect.

5.6.64 **Table 5.6** and **Figure 4.14: Cumulative Location Plan (EIAR Volume 3a)** show the wind farms at application stage and consented wind farms up to 45 km from the Site. Those in scoping are insufficiently certain in terms of the nature, location and timing of their effects to be considered in this assessment. Operational schemes have been considered as part of the baseline and would not give rise to cumulative operational effects.

Table 5.6: Cumulative Wind Farms (as of February 2026) – 45 km Study Area

Status	Name	No. of Turbines	Max. Tip Height (m)	Distance to Site
Application	Sullom Voe Terminal	2	149.9	2.9 km to W
Consented	Luggies Knowe Phase 2	1	149.9	32.3 km to S
	Beaw Field Wind Farm	17	145	10.6 km to NE
	Energy Isles Wind Farm (formally Yell Wind Farm)	18	180	24.3 km to NE
	Mossy Hill Wind Farm	12	144.5	33.9 km to S
	North Hoo Fields Wind Turbine Extension	1	99	34.7 km to S

5.6.65 **Table 5.6** indicates the six cumulative wind farm schemes that have been considered in this assessment. The wind farm schemes at Luggies Knowe, Energy Isles, Mossy Hill, and North Hoo Fields are all beyond 20 km from the Proposed Development. Therefore, the Sullom Voe Terminal and Beaw Field wind farms are the cumulative developments considered most likely to result in potential cumulative operational effects. Visualisations and wirelines presented in the appendix of the Cultural Heritage and Archaeology Assessment for the Sullom Voe turbines[27] has indicated the potential for cumulative setting impacts on the two Crooksetter Hill cairns (Assets 32 and 35), the Graven cairn (Asset 16), and the Kames coastal defences (Asset 38). The assessment of potential cumulative operational effects is presented in **Table 5.7** below followed by further discussion on the potential effects on those assets highlighted by HES at consultation.

Table 5.7: Cumulative Setting Assessment

Asset Name, Type & NHRE Reference	Sensitivity	Magnitude of Impact	Level of Effect	Cumulative Setting Assessment	Level of Cumulative Effect
Head of Brough, broch, West Yell (Scheduled	High	Low	Minor	The location of this broch on the western shore of Yell means that there would be	Minor

[27] Orkney Research Centre for Archaeology (ORCA) (2025). *Sullom Voe Wind Turbines, SVT Mossbank, Shetland Islands: Cultural Heritage and Archaeology Assessment*. Unpublished report.

Table 5.7: Cumulative Setting Assessment					
Asset Name, Type & NHRE Reference	**Sensitivity**	**Magnitude of Impact**	**Level of Effect**	**Cumulative Setting Assessment**	**Level of Cumulative Effect**
Monument, SM2071, Asset 5)				no visibility of the Beaw Field Wind Farm to the south east, and whilst the tips of the Sullom Voe turbines may be seen, they would be at a distance that would not interfere with the key views and characteristics of the Scheduled Monument, nor would the turbines affect the intervisibility with other contemporary monuments. Therefore, consideration of the Sullom Voe turbines together with the Proposed Development would not result in an increased impact upon the setting of the asset. There would be no change to the Level of Effect already predicted as a result of the Proposed Development on its own.	
Fugla Ness, broch 330 m NNW of (Scheduled Monument, SM2080, Asset 6)	High	Low	Minor	Discussed further below.	Minor
Holm of Copister, broch 850 m SW of Southerness (Scheduled Monument, SM2091, Asset 7)	High	Low	Minor	The tips of one of the two Sullom Voe turbines would appear behind the Proposed Development when looking towards Fugla Ness broch (Asset 6) from the Holm of Copister broch (**Figure 5.8a-f: CHVP2b: Holm of Copister broch – photomontage (EIAR Volume 3b)**). However, only the very tips of the turbines would be seen, and they would not interfere with the key views and characteristics of the Scheduled Monument, nor would the turbines affect the intervisibility with other contemporary monuments. Therefore, the addition of the Sullom Voe turbines would not alter the ability to appreciate and understand the contribution that setting makes to the asset's significance. Consideration of the Sullom Voe turbines together with the Proposed Development would not result in an increased impact upon the setting of the asset. There would be	Minor

Table 5.7: Cumulative Setting Assessment					
Asset Name, Type & NHRE Reference	**Sensitivity**	**Magnitude of Impact**	**Level of Effect**	**Cumulative Setting Assessment**	**Level of Cumulative Effect**
				no change to the Level of Effect already predicted as a result of the Proposed Development on its own.	
Chapel Knowe, earthworks, church and graves 40 m WNW of Lunna Church (Scheduled Monument, SM2691, Asset 9)	Medium	Low	Minor	The rise in topography to the north east would prevent any visibility of the Beaw Field Wind Farm. The tips of the two Sullom Voe turbines may be visible to the north west, but if the turbines were visible, the distance would place the turbines beyond those aspects of the asset's setting which contribute to the ability to understand, appreciate and experience its significance. Therefore, the addition of the Sullom Voe turbines would not alter the ability to appreciate and understand the contribution that setting makes to the Scheduled Monument. Consideration of the Sullom Voe turbines together with the Proposed Development would not result in an increased impact upon the setting of the asset. There would be no change to the Level of Effect already predicted as a result of the Proposed Development on its own.	Minor
Graven, chambered cairn 650 m SW of (Scheduled Monument, SM3524, Asset 16)	High	Medium	**Moderate**	Discussed further below.	**Moderate**
Auchensalt, burnt mound 85 m E of (Scheduled Monument, SM3556, Asset 19)	Low	Low	Neutral	There would be no visibility of the Sullom Voe turbines from this monument. The Beaw Field Wind Farm would be visible on the horizon to the east. However, the Beaw Field Wind Farm would be seen when looking in the opposite direction from the Proposed Development, and so would not interfere with the key views and characteristics of the Scheduled Monument, nor would the turbines affect the intervisibility with other contemporary monuments. Consideration of Beaw Field Wind Farm together with the Proposed	Neutral

Table 5.7: Cumulative Setting Assessment					
Asset Name, Type & NHRE Reference	**Sensitivity**	**Magnitude of Impact**	**Level of Effect**	**Cumulative Setting Assessment**	**Level of Cumulative Effect**
				Development would not result in an increased impact upon the setting of the asset. There would be no change to the Level of Effect already predicted as a result of the Proposed Development on its own.	
Norden, burnt mound 160 m ESE of (Scheduled Monument, SM3557, Asset 20)	Low	Low	Neutral	There would be no visibility of the Sullom Voe turbines from this monument. The Beaw Field Wind Farm would be visible on the horizon to the east. However, the Beaw Field Wind Farm would be seen when looking in the opposite direction from the Proposed Development, and so would not interfere with the key views and characteristics of the Scheduled Monument, nor would the turbines affect the intervisibility with other contemporary monuments. Consideration of Beaw Field Wind Farm together with the Proposed Development would not result in an increased impact upon the setting of the asset. There would be no change to the Level of Effect already predicted as a result of the Proposed Development on its own.	Neutral
Skeo Knowe, mound 200 m E of Nissetter (Scheduled Monument, SM3562, Asset 22)	Medium	Low	Minor	The topography to the north east would limit any visibility of the Beaw Field Wind Farm. The Sullom Voe turbines would be more prominently visible in the foreground in views to the south east, but would not affect the ability to understand, appreciate and experience the contribution that setting makes to the asset's overall significance and key characteristics would not be eroded. Consideration of the Sullom Voe turbines together with the Proposed Development would not result in an increased impact upon the setting of the asset. There would be no change to the Level of Effect already predicted as a result of the Proposed Development on its own.	Minor

Table 5.7: Cumulative Setting Assessment					
Asset Name, Type & NHRE Reference	**Sensitivity**	**Magnitude of Impact**	**Level of Effect**	**Cumulative Setting Assessment**	**Level of Cumulative Effect**
Beorgs of Housetter, chambered cairn 730 m NW of Setter House (Scheduled Monument, SM3569, Asset 27)	High	Low	Minor	Both the Beaw Field Wind Farm and the Sullom Voe turbines would be visible from this Scheduled Monument, but at such a distance that only the turbine tips are likely to be visible. The Sullom Voe turbines would be slightly more prominently visible than the Proposed Development as they would be in the foreground in views to the south east, but would not affect the ability to understand, appreciate and experience the contribution that setting makes to the asset's overall significance and key characteristics would not be eroded. Consideration of the Sullom Voe turbines and Beaw Field Wind Farm together with the Proposed Development would not result in an increased impact upon the setting of the asset. There would be no change to the Level of Effect already predicted as a result of the Proposed Development on its own.	Minor
Crooksetter Hill, chambered cairn at SE summit of (Scheduled Monument, SM3576, Asset 32)	High	Medium	**Moderate**	Discussed further below.	**Moderate**
Crooksetter Hill, chambered cairn near NW summit of (Scheduled Monument, SM3608, Asset 35)	High	Medium	**Moderate**	Discussed further below.	**Moderate**
The Kames, coastal defence battery 100 m SE of, Calback Ness (Scheduled Monument, SM10756, Asset 38)	Medium	Low	Minor	Discussed further below.	Minor
Lunna House (Garden & Designed Landscape, GDL00271, Asset 45)	Medium	Low	Minor	Discussed further below.	Minor

Table 5.7: Cumulative Setting Assessment					
Asset Name, Type & NHRE Reference	**Sensitivity**	**Magnitude of Impact**	**Level of Effect**	**Cumulative Setting Assessment**	**Level of Cumulative Effect**
Garth, Pony Pund, including Gates, and Adjoining Outbuildings (Category B Listed Building, LB44527, Asset 47)	Low	Medium	Minor	The Beaw Field Wind Farm would not be visible from this Listed Building. The Sullom Voe turbines would be seen, but they would not interfere with the key views and characteristics of the Listed Building. Consideration of the Sullom Voe turbines together with the Proposed Development would not result in an increased impact upon the setting of the asset. There would be no change to the Level of Effect already predicted as a result of the Proposed Development on its own.	Minor
Ulsta, Pier House (Category C Listed Building, LB18679, Asset 51)	Medium	Low	Minor	The Beaw Field Wind Farm would not be visible from this Listed Building. The tips of the Sullom Voe turbines may be seen, but they would not interfere with the key views and characteristics of the Listed Building. Consideration of the Sullom Voe turbines together with the Proposed Development would not result in an increased impact upon the setting of the asset. There would be no change to the Level of Effect already predicted as a result of the Proposed Development on its own.	Minor

Fugla Ness broch (SM2080; Asset 6)

5.6.66 The Beaw Field Wind Farm would be visible on the horizon to the east from the Fugla Ness broch (**Figure 5.5a-f: CHVP1a: SM2080 Fugla Ness broch (EIAR Volume 3b)**). However, the Beaw Field Wind Farm would be seen when looking in the opposite direction from the Proposed Development, and would not interfere with the key views and characteristics of the Scheduled Monument as established above, nor would the turbines affect the intervisibility with other contemporary monuments. Therefore, the presence of the Beaw Field Wind Farm in conjunction with the Proposed Development would not alter the ability to appreciate and understand the contribution that setting makes to the monument and therefore would not change the Minor Level of Effect already predicted as a result of the Proposed Development.

5.6.67 The tips of the two Sullom Voe turbines would appear behind the Proposed Development when looking towards Fugla Ness broch from Yell Sound (**Figure 5.6a-f: CHVP1b: Fugla Ness broch from Yell Sound (EIAR Volume 3b)**). However, only the very tips of the turbines would be seen, and they would not interfere with the key views and characteristics of the Scheduled Monument as established above, nor would the turbines affect the intervisibility with other contemporary monuments. Therefore, the presence of the Sullom Voe turbines, in

conjunction with the Proposed Development, would not alter the ability to appreciate and understand the contribution that setting makes to the monument.

5.6.68 For the reasons given above the in-combination effect of all three cumulative developments considered together would also not result in an increased impact and therefore the cumulative effect is not considered to exceed the Minor Level of Effect already predicted as a result of the Proposed Development on its own.

Graven chambered cairn (SM3524; Asset 16)

5.6.69 The Sullom Voe turbines would be visible from the Graven cairn to the north and would be seen alongside the existing Sullom Voe Oil and Gas Terminals (**Figure 5.9a-f: CHVP3: Cairn at Hill of Graven (EIAR Volume 3b)**), which would separate them from the Proposed Development turbines. Whilst the height of the two Sullom Voe turbines would make them more prominent than the existing industrial infrastructure, they would not interfere with the key views and characteristics of the Scheduled Monument as established above, nor would the turbines affect the intervisibility with other contemporary monuments.

5.6.70 It is possible that in clear weather conditions the Beaw Field Wind Farm would be visible in the far distance from the Graven cairn (**Figure 5.9a-f: CHVP3: Cairn at Hill of Graven (EIAR Volume 3b**) to the east of the Proposed Development when looking toward the two Crooksetter Hill cairns (Assets 32 and 35). However, the Beaw Field Wind Farm would only be visible at a distance that would not alter the ability to appreciate and understand the contribution that setting makes to this monument.

5.6.71 Whilst the in-combination effects of all three cumulative developments taken together would see a spread of turbines across the horizon in views to the north from the cairn, the degree of separation between the three developments and distance from the asset, along with the reasons set out above, means that the cumulative effect would not exceed the **Moderate** Level of Effect already predicted as a result of the Proposed Development on its own.

Crooksetter Hill south east chambered cairn (SM3576; Asset 32)

5.6.72 The Sullom Voe turbines would be visible from the Crooksetter Hill south east cairn (**Figure 5.11a-f: CHVP5: SM3576 Crooksetter Hill south east chambered cairn (EIAR Volume 3b)**) to the west and would be seen alongside the existing Sullom Voe Oil and Gas Terminals. Whilst the height of the two Sullom Voe turbines would make them more prominent than the existing industrial infrastructure, they would not, in conjunction with the Proposed Development increase the impacts identified with regard to the key views and characteristics of the Scheduled Monument as established above, nor would the turbines affect the intervisibility with other contemporary monuments, particularly the key views between this and the north west Crooksetter Hill cairn (Asset 35) and the Graven cairn (Asset 16) to the south west.

5.6.73 The turbines of the Beaw Field Wind Farm would appear to the north east in the far distance from the cairns (**Figure 5.11a-f: CHVP5: SM3576 Crooksetter Hill south east chambered cairn (EIAR Volume 3b)**) and as such would not alter the ability to appreciate and understand the contribution that setting makes to the monument.

5.6.74 **Figure 5.11a-f: CHVP5: SM3576 Crooksetter Hill south east chambered cairn (EIAR Volume 3b)** also shows that theoretically the Energy Isles turbines would be visible from the south east Crooksetter Hill cairn, however these would be seen at such a far distance that they would be unlikely to be discernible on the horizon.

5.6.75 For the reasons given above the in-combination effect of all the cumulative developments considered together would also not result in an increased impact and therefore the cumulative effect is not considered to exceed the **Moderate** Level of Effect already predicted as a result of the Proposed Development on its own.

Crooksetter Hill north west chambered cairn (SM3608; Asset 35)

5.6.76 The Sullom Voe turbines would be visible from the Crooksetter Hill north west cairn (**Figure 5.12a-f: CHVP6: SM3608 Crooksetter Hill north west chambered cairn (EIAR Volume 3b)**) to the west and would be seen alongside the existing Sullom Voe Oil and Gas Terminals. Whilst the height of the two Sullom Voe turbines would make them more prominent than the existing industrial infrastructure, they would not, in conjunction with the Proposed Development increase the impacts identified with regard to the key views and characteristics of the Scheduled Monument as established above, nor would the turbines affect the intervisibility with other contemporary monuments, particularly the key views between this and the south east Crooksetter Hill cairn (Asset 32) and the Graven cairn (Asset 16) to the south west. The turbines of the Beaw Field Wind Farm would appear to the north east in the far distance from the cairns (**Figure 5.11a-f: CHVP5: SM3576 Crooksetter Hill south east chambered cairn (EIAR Volume 3b)**) and as such would not alter the ability to appreciate and understand the contribution that setting makes to the monument. **Figure 5.12a-f: CHVP6: SM3608 Crooksetter Hill north west chambered cairn (EIAR Volume 3b)** also shows that theoretically the Energy Isles turbines would be visible from the south east Crooksetter Hill cairn, however these would be seen at such a far distance that they would be unlikely to be discernible on the horizon.

5.6.77 For the reasons given above the in-combination effect of all the cumulative developments considered together would also not result in an increased impact and therefore the cumulative effect is not considered to exceed the **Moderate** Level of Effect already predicted as a result of the Proposed Development on its own.

Kames coastal defence battery (SM10756; Asset 38)

5.6.78 The two Sullom Voe turbines would appear prominently in views to the south of the Kames coastal defence battery. As has been established above and in **Technical Appendix 6.3: Setting Assessment (EIAR Volume 4)**, the key views from this monument are to the north and north west, so the addition of two turbines, in addition to the Proposed Development turbines, to the landscape would not alter the ability to appreciate and understand the contribution that setting makes to these monuments and therefore would not increase the Negligible Level of Effect already predicted as a result of the Proposed Development on its own. There would be no visibility of any of the other cumulative schemes from this asset.

Lunna House (GDL00271; Asset 45)

5.6.79 The rise in topography to the north east of the Lunna House GDL would prevent any visibility of the Beaw Field Wind Farm. The tips of the two Sullom Voe turbines may be visible to the north west, but if the turbines were visible, their distance between the GDL would place the turbines beyond those aspects of the asset's setting which contribute to the ability to understand, appreciate and experience its significance. Therefore, the presence of the Sullom Voe turbines, in combination with the Proposed Development, would not alter the ability to appreciate and understand the contribution that setting makes to the GDL and therefore would not change the Minor Level of Effect already predicted as a result of the Proposed Development on its own.

5.7 Additional (Secondary) Mitigation

5.7.1 This section describes the additional mitigation measures recommended to address the likely significant effects of the Proposed Development. Additional (secondary) mitigation comprises site-specific mitigation which has been included to reduce the Magnitude of Impact/significance of effect identified through the EIA.

5.7.2 A summary of the additional mitigation is set out in **Table 5.8**.

Additional Mitigation during Construction

5.7.3 The Proposed Development has been designed, where possible, to avoid direct physical impacts on known heritage assets. The **Technical Appendix 5.2: Archaeological Desk-Based Assessment (EIAR Volume 4)** has identified a High potential for previously unrecorded archaeological remains of the prehistoric period to be present within the Site. Potential is considered to be highest in the vicinity of known prehistoric remains within the Site. These areas have been avoided by design where possible.

5.7.4 Given the identified archaeological potential within the Site, it is proposed that a programme of archaeological investigation would be undertaken to further investigate the potential for disturbance of hitherto unknown archaeological remains.

5.7.5 It is considered that the most appropriate form of archaeological investigation would be in the form of an archaeological watching brief during any ground works within the Site, particularly where the former field boundary (Asset 130) would be impacted. This should include monitoring of ground breaking for works associated with the Proposed Development and those associated with the peatland and habitat enhancement proposals as set out within **Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**. Where significant archaeological remains were encountered further mitigation works may be required. Potential mitigation may take the form of preservation in situ or a programme of further archaeological works to ensure preservation by record. Mitigation measures for potential direct physical impacts to buried archaeological remains within the Site may include undertaking intrusive archaeological investigations, where avoidance and preservation in situ are not possible, to provide further information regarding the survival, depth, character, date, function and significance of the identified possible buried archaeological remains and to preserve them by record.

5.7.6 Given the potential for remains of the crashed WW2 Catalina aircraft (Asset 66) to extend within the Site boundary, it is also recommended that a programme of metal-detecting carried out around the areas of the Proposed Development in the southern portion of the Site to the south of Hill of Garth, particularly the southernmost borrow pit search area.

5.7.7 Deep peat deposits up to 6 m have been recorded across the Site. Areas of deeper peat represent accumulation over thousands of years and potentially contain a high-quality temporal record of past environments including those contemporary with past settlement in and around the site. Using paleoenvironmental techniques such as plant macrofossil analysis, carbon dating and pollen analysis we can understand how plant species and carbon accumulation have changed in the past in relation to climatic shifts, or changes in land use. Understanding the past development of the peat is crucial in better understanding archaeological evidence for settlement and agriculture across the site. Deep peat deposits have a high potential for preservation of paleoenvironmental proxies which may inform us about past environments. Whilst the Proposed Development layout has been designed to avoid areas of deep peat where possible, the Turbine 8 hardstanding and earthworks have the

potential to impact on a very small area of peat up to a depth of 6 m. As such a programme of paleoenvironmental coring is recommended around these two areas prior to construction and would include extraction of a sediment core. The paleoenvironmental assessment would focus on pollen, insect, and macro plant remains within the peat and would include provision for radiocarbon dates. The paleoenvironmental investigation of the sample(s) would help to inform more generally about the nature of landscape prior to and at the time of settlement in and around the site and may record indirect evidence for past humans and their impact on the environment. The exact scope of the geoarchaeological investigation would be agreed through consultation with SIC and should consider both areas to be disturbed by the Proposed Development itself and any areas that may be disturbed as a result of the habitat management and peat restoration plan proposed in **Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**.

5.7.8 As noted in Section 5.3 above, off-site peatland restoration is proposed in **Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**, though the location of this restoration has not yet been determined. Once the location has been determined, it should be subject to an archaeological desk-based assessment, including a walkover survey. The desk-based assessment should set out mitigation measures for cultural heritage assets as appropriate.

5.7.9 Provision for additional mitigation would be secured by planning condition(s) and executed post-determination. The scope and methodology of all archaeological fieldwork would be agreed with SIC prior to commencement.

5.7.10 NPF4[28], CIfA[29] and ALGAO[30] have recently all noted the need for public or community engagement in archaeology. HES's Our Past, Our Future states that "*the historic environment creates real benefits for people*", and two of the three priorities of the publication relate to public engagement and public benefit[31]. Any archaeological fieldwork commissioned in order to mitigate direct physical effects would result in the production and dissemination of a professional archive, which would add to our understanding of the cultural heritage of the Site. Depending on the results of the fieldwork, a popular publication could also be produced and disseminated.

Additional Mitigation during Operation

5.7.11 No additional mitigation measures for non-physical impacts to historic assets arising through change to setting have been identified as, by their very nature, setting impacts resulting from wind energy developments are very hard to mitigate beyond design iterations designed to minimise such effects as far as practicable. However, there are compensatory mitigation and enhancement opportunities that can be applied to offset the impacts on some of the setting impacts within the Site, as detailed below. These enhancement opportunities would not reduce the impacts but would enable a greater understanding of the cultural heritage of the Site.

5.7.12 The need for public benefit or community engagement is noted in the previous section. Public benefit or a programme of enhancement can also be incorporated into the Proposed

[28] Scottish Government (2023). *National Planning Framework 4*. Available at: https://www.gov.scot/publications/national-planning-framework-4/ [Accessed 27/01/2026], 47.

[29] CIfA (2021). *Professional Practice Paper: Delivering Public Benefit*. Available at: https://www.archaeologists.net/sites/default/files/2024-11/CIfA-Delivering-Public-Benefit_2021.pdf [Accessed 27/01/2026]

[30] Mann, B. (2023). *Delivery of Public Benefit and Social Value Guidance for Archaeology and the Planning Process*. Available at: https://algao.org.uk/sites/algao.org.uk/files/2023-02/ALGAO_Delivery_of_Public_Benefit_Social_Value_Guidance.pdf [Accessed 27/01/2026].

[31] HES (2023). *Our Past, Our Future: The Strategy for Scotland's Historic Environment*. Available at: https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=79204155-9eb2-4d29-ab14-aff200ec2801 [Accessed 27/01/2026].

Development as an offsetting measure to improve interpretation both on-site and remotely to enhance experience of heritage in the area.

5.7.13 An increase in available online information about the heritage of the Site and surrounding area can be proposed in recognition of the fact that physical and intellectual access to the prehistoric assets are currently limited to a select few. To ensure that people benefit from heritage, an understanding and appreciation of its cultural significance must reach beyond specialist understanding to the wider public. Any such heritage interpretation strategy for the Site would aim to concentrate expansion of access and interpretation remotely, via the internet and through published sources.

5.7.14 A digital interpretation approach would aim for consistency and clarity of digital heritage presentation to enhance experiences of the Site's cultural heritage. This would facilitate connectivity between the assets in the landscape allowing for a more complete picture of the prehistoric periods in the Shetland Islands. The overriding aim of an interpretation strategy would be to reveal the cultural significance of the prehistoric funerary monuments to non-experts and enable a better understanding of their palaeoecological setting and placement within a wider landscape rich in evidence for prehistoric activity. The data collected would be shared with interested heritage stakeholders including HES and SIC to ensure the widest possible dissemination of information and to allow for the creation of a high-quality digital record which can be used for future research and engagement initiatives. The exact details of this enhancement would need to be developed in association with the Applicant, HES, SIC, and any other relevant stakeholders.

Table 5.8: Summary of Additional Mitigation

Reference	Phase*	Description of Mitigation	Purpose of Mitigation	Means of Implementation	Consultation or Approval Required
CH01	C	Archaeological watching brief	To identify any potential previously undiscovered archaeological remains and mitigate the potential impacts to any such remains.	An archaeological watching brief during any ground works on the Site, particularly where the route of the former field boundary (Asset 130) would be impacted.	Consultation with SIC required.
CH02	C	Metal-detecting survey	To identify any potential remains of the crashed WW2 aircraft (Asset 66) and mitigate the potential loss of any such remains.	A metal-detecting survey around the areas in the southern portion of the Site south of Hill of Garth, particularly around the southern borrow pit.	Consultation with SIC required.
CH03	C	Peat sample coring	To better understand the past environments and mitigate for any potential loss of preserved palaeoenvironmental data.	Extraction of sediment cores across areas of deep peat around the proposed locations of Turbine 8 and the construction compound.	Consultation with SIC required.
CH04	O	Heritage interpretation strategy	To offset the potential impacts to the settings of Scheduled Monuments as a result of the Proposed Development.	This could range from interpretation boards or heritage trails to online and digital interpretations and should be discussed in consultation with HES and SIC.	Consultation with HES and SIC required.

**C=construction, O=operation and maintenance.*

5.8 Assessment of Residual Effects

5.8.1 The residual effect is what remains following the application of mitigation and management measures. The level of residual effect is defined using criteria outlined in **Technical Appendix 5.1: Cultural Heritage Assessment Methodology (EIAR Volume 4)**. No direct mitigation is possible for setting effects resulting from wind energy developments (beyond embedded mitigation by design) and therefore residual operational phase effects on the setting of heritage assets would be the same as potential (pre-mitigation) effects.

Residual Construction Effects

5.8.2 The mitigation as outlined above would allow for recording of peripheral deposits associated with known remains and investigate the potential for previously unknown assets. This would further allow for the avoidance of direct physical effects or, in cases where this might not be possible, would allow for recording of elements of assets which would be removed (preservation by record). This mitigation would not reduce the Magnitude of Impact and as such the level of residual effect would be the same as the construction effect, but effects would be offset. The assessment has noted the potential for previously unrecorded archaeological remains to be present which have the potential to be subject to **Significant** impacts, but there would be potential to reduce these impacts to any such remains if they cannot be wholly or partially avoided. Following the completion of construction, no further groundworks are expected to be undertaken. Mitigation would allow for the detailed recording of any remains encountered during the construction phase and the results would therefore enhance our understanding of the area's cultural heritage.

Residual Operational Effects

5.8.3 Operational effects include impacts upon the settings of non-designated assets, and designated assets such as Listed Buildings, Scheduled Monuments, and GDLs. Impacts upon setting are a material consideration in the planning process and the predicted effects of the Proposed Development, which would be largely restricted to the operational phase, have been set out in **Section 5.6** above and also within **Technical Appendix 5.3: Setting Assessment (EIAR Volume 4)**. Predicted setting effects resulting from wind energy developments are by their very nature hard to mitigate (beyond design iteration designed to minimise such effects as far as practicable).

5.8.4 As there is no mitigation for setting impacts, beyond mitigation by design, for a development of this type, there would be no change to the **Moderate** and **Significant** Level of Effect assessed for the three heritage assets (Assets 16, 32, and 33) identified in **Section 5.6** above. Whilst this level of impact would lead to an alteration to the assets' baseline setting the cultural significance of the monuments would remain understandable, and the key characteristics of the setting of the Scheduled Monuments would be adequately retained, and thus the identified adverse effects would not result in a significant adverse impact on the integrity of the assets setting in terms of NPF4[23].

Residual Cumulative Construction Effects

5.8.5 There are no residual cumulative construction effects on any heritage assets.

Residual Cumulative Operational Effects

5.8.6 There are no cumulative operational effects that would change the **Moderate** Level of Effect already predicted as a result of the Proposed Development, and so there would be no change

to the **Moderate** and **Significant** Level of Effect assessed for the three heritage assets (Assets 16, 32, and 33) identified in Section 5.6 above.

5.9 Monitoring

5.9.1 Once operational, it is predicted that the Proposed Development would not require any below ground works beyond occasional maintenance of the turbines and other infrastructure within the previously impacted footprint. Therefore, no further monitoring is required.

5.10 Summary of Potential Significant Effects

5.10.1 This chapter considers the archaeological and cultural heritage value of the Site and assesses the potential for significant effects on archaeological features and heritage assets resulting from the construction, operation and decommissioning of the Proposed Development. This assessment considers the potential for physical effects upon archaeological remains, as well as the potential for operational and cumulative setting effects upon designated heritage assets. Where appropriate and if necessary, measures to mitigate or offset such effects are identified, and an assessment of the significance of residual effects, following the implementation of any mitigation, is also made.

5.10.2 The scope of this assessment meets the requirements of current planning regulations, policies, and guidance set out in **Technical Appendix 5.1: Cultural Heritage Assessment Methodology (EIAR Volume 4)**.

5.10.3 A review of designated and non-designated heritage assets as recorded by HES and the SIC HER, as well as historic mapping, aerial photography and informed by walkover survey, has concluded that there is a High potential for previously unrecorded archaeological remains of the prehistoric period to be present within the Site. These are likely to be related to the existing prehistoric monuments within the Site and the agricultural use of the landscape during the post-medieval period. The Site also has a High potential for the recovery of deposits of palaeoenvironmental interest.

5.10.4 The Proposed Development has been designed where possible to avoid physical impacts on known heritage assets, although potential physical impacts have been identified to the former field boundary (Asset 130) and to small areas of deep peat. There is also potential for remains of the Catalina flying boat (Asset 66) which crashed on Hill of Garth to be present within the Site. To mitigate for physical impacts on unknown heritage assets, a programme of archaeological investigation would be undertaken to further investigate the potential for disturbance of hitherto unknown archaeological remains. The most appropriate form of archaeological investigation within the Site would be in the form of an archaeological watching brief on a proportion of ground works and should include the areas of the field boundary (Asset 130) which would be impacted. A programme of peat sampling around the proposed locations of Turbine 8 and the construction compound and a metal-detecting survey in the area south of the Hill of Garth are also recommended. The programme of works can be tailored in accordance with the archaeological potential of different areas of the Site and would be subject to consultation with SIC.

5.10.5 All designated heritage assets within 10 km of the Site were identified to assess the potential for the Proposed Development to impact their settings. An assessment of the settings of designated heritage assets was informed by consultation with HES, SIC, a ZTV, site visits, and visualisations. A total of 30 designated heritage assets were identified for assessment of the impact of the Proposed Development on their settings. Where appropriate and possible,

turbines have been located to avoid identified key sightlines between monuments sensitive to changes in their settings.

5.10.6 The assessment identified a **Moderate** Level of Effect on three heritage assets as a result of the Proposed Development. This Level of Effect is considered **Significant** in EIA terms. Where EIA **Significant** effects have been identified as a result of the Proposed Development, it is necessary to consider the overall Level of Effect which would arise from the Proposed Development and identify whether the identified adverse impact would cause a significant adverse impact upon the integrity of the setting as per Policy 7h(ii) of NPF4[23]. In each case, the identified adverse impact is not considered to cause a significant adverse impact upon integrity of setting in terms of Policy 7h(ii) of NPF4[23].

5.10.7 In addition, the assessment identified a Minor Level of Effect on the setting of eight assets, a Negligible or Neutral Level of Effect on 15 assets, and no impact on three assets within the ZTV: this Level of Effect is considered to be **Not Significant** in EIA terms.

5.10.8 There is no change to the heritage impacts as a result of cumulative effects from operational or proposed wind farm schemes.

5.10.9 A summary of the potential significant effects of the Proposed Development during the Construction, Operation, and Decommissioning phases is shown in **Table 5.9**.

Table 5.9: Summary of Potential Significant Effects

Impact	Likely Significance of Effect	Mitigation Proposed	Residual Effect	Monitoring
Construction				
Physical impacts to previously unrecorded assets within the Site.	Up to **Major (Significant)**	Archaeological watching brief during any ground works, as agreed with SIC (mitigation reference: CH01). Upon identification of any previously unrecorded remains a decision on the necessary further mitigation would be made and impact would either be avoided, minimised or offset via preservation by record.	None to **Major (Significant)** but offset.	Not required
Physical impacts to the post-medieval field boundary (Asset 130) within the Site.	Negligible	Archaeological watching brief during any ground works, as agreed with SIC (mitigation reference: CH01).	Negligible (Not Significant) but offset.	Not required
Physical impacts to the potential palaeoenvironmental data contained within the peat around Turbine 8	Minor	A programme of paleoenvironmental coring as agreed with SIC (mitigation reference: CH03).	Minor (Not Significant) but offset.	Not required

Table 5.9: Summary of Potential Significant Effects				
Impact	**Likely Significance of Effect**	**Mitigation Proposed**	**Residual Effect**	**Monitoring**
and the construction compound.				
Operation				
Impact to the setting of the Scheduled Graven cairn (Asset 16).	**Moderate (Significant)**	None beyond embedded and standard mitigation and potential enhancement opportunities (mitigation reference: CH04).	**Moderate (Significant)**	Not required
Impact to the setting of the Scheduled south east Crooksetter Hill cairn (Asset 32).	**Moderate (Significant)**	None beyond embedded and standard mitigation and potential enhancement opportunities (mitigation reference: CH04).	**Moderate (Significant)**	Not required
Impact to the setting of the Scheduled north west Crooksetter Hill cairn (Asset 35).	**Moderate (Significant)**	None beyond embedded and standard mitigation and potential enhancement opportunities (mitigation reference: CH04).	**Moderate (Significant)**	Not required
Cumulative Construction				
None	Not applicable	Not applicable	Not applicable	Not applicable
Cumulative Operation				
Impact to the setting of the Scheduled Graven cairn (Asset 16).	**Moderate (Significant)**	None beyond embedded and standard mitigation and potential enhancement opportunities (mitigation reference: CH04).	**Moderate (significant)**	Not required
Impact to the setting of the Scheduled south east Crooksetter Hill cairn (Asset 32).	**Moderate (Significant)**	None beyond embedded and standard mitigation and potential enhancement opportunities (mitigation reference: CH04).	**Moderate (significant)**	Not required
Impact to the setting of the Scheduled north west Crooksetter Hill cairn (Asset 35).	**Moderate (Significant)**	None beyond embedded and standard mitigation and potential enhancement opportunities (mitigation reference: CH04).	**Moderate (significant)**	Not required

6 Ecology

6.1 Executive Summary

6.1.1 The Ecology chapter considers the likely effects of the Proposed Development on ecological receptors at the Site and surrounding Study Area, during construction and operation. This assessment is based upon comprehensive baseline data, comprising specifically of targeted ecological field surveys of important and legally protected ecological receptors identified during desk study and consultation feedback. It draws upon pre-existing information, where appropriate, from other studies, survey data sources and NatureScot and the Chartered Institute for Ecology and Environmental Management (CIEEM) best practice guidance[1].

6.1.2 Targeted baseline ecology surveys, following best practice guidance, were undertaken within the Site and surrounding Study Area between 2022 and 2025.

6.1.3 There are seven statutory designated sites with ecological features within 10 km of the Proposed Development. The closest and most relevant to the site was the Yell Sound Coast Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI).

6.1.4 The Study Area was characterised by blanket bog and dry modified bog with the most common National Vegetation Classification (NVC) community mapped across the Study Area being *M17b Trichophorum germanicum – Eriophorum vaginatum* blanket mire community, *Cladonia* spp. sub-community. Less frequently recorded habitats including dry heath, wet heath, acid grassland, coastal grassland and marshy grassland.

6.1.5 There were otter and mountain hare signs recorded within the Study Area. These included an otter holt location, couch locations, spraints and feeding signs which were largely along the section of coastline.

6.1.6 Potential direct and indirect impacts were assessed following best practice guidance and were considered both during construction and during operation. Impacts on potentially sensitive ecological receptors were avoided and minimised wherever possible in line with NPF4 and best practice guidance and were incorporated into the design process (embedded mitigation).

6.1.7 This assessment does not predict any likely significant ecological residual effects associated with the construction and operation of the Proposed Development.

6.1.8 Extensive opportunities for ecological restoration and enhancement are described in the Outline Biodiversity Enhancement and Habitat Management Plan (OBEHMP) (**Technical Appendix 6.5: OBEHMP (EIAR Volume 4)**) in accordance with Policy 3 of National Planning Framework 4 (NPF4).

6.2 Introduction

6.2.1 This chapter considers the likely significant effects on ecology associated with the construction and operation of Neshion Energy Park ('the Proposed Development').

6.2.2 The Proposed Development is a renewable energy development comprised of up to eight wind turbines, a Battery Energy Storage System (BESS) and associated infrastructure adjacent to Sullom Voe Oil Terminal (SVT) and the Shetland Gas Plant in Shetland, Scotland.

[1] CIEEM. (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (version 1.3, 2024). CIEEM, Winchester. Available from: https://cieem.net/resource/guidelines-for-ecological-impact-assessment-ecia/. [Accessed 19/03/2026]

The assessment is based on the Proposed Development as described in **Chapter 2: Proposed Development (EIAR Volume 2)**.

6.2.3 The specific objectives of the chapter are to:

- describe the existing ecological baseline context and cumulative context;
- describe the assessment methodology and significance criteria used in completing the impact assessment;
- describe the potential effects, including direct, indirect and cumulative effects;
- describe the mitigation measures proposed to address likely significant effects; and
- assess the residual effects remaining following the implementation of mitigation.

6.2.4 Alba Ecology Ltd. staff led on all aspects of the ecological fieldwork and assessment in association with the Proposed Development. Alba Ecology Ltd. is a highly experienced Scottish-based multi-disciplinary ecological consultancy that has worked in Scotland and Shetland for many years. Alba's staff have led on, and contributed to, all aspects of Ecological Impact Assessment (EcIA) on many large-scale wind farm development projects, including principal ecological surveyors, advisors on planning applications, expert witness at Public Local Inquiry, the management of Ecological Clerks of Work (ECoW) teams as well as production of Environmental Impact Assessment (EIA) Reports, Habitat Regulations Assessments and Biodiversity Enhancement and Habitat Management Plans (BEHMP).

6.2.5 The ecological surveyors who undertook the surveys for the Proposed Development were Dr Kate Massey (MCIEEM), Donald Shields (MCIEEM), Dr Fergus Massey and Dr Peter Cosgrove (FCIEEM) of Alba Ecology Ltd. The surveyors have extensive ecological field experience across Shetland and have attended training events led by experts, covering areas such as species identification, recording data concisely and accurately, navigation techniques and health and safety. Surveyors were trained to carry out surveying and mapping work in a systematic manner, following recognised standardised best practice survey methods.

6.2.6 This chapter is supported by the following figures and technical appendices:

- Volume 3a: Figures:
  - **Figure 6.1: Ecological Study Areas;**
  - **Figure 6.2: Designated Sites;**
  - **Figure 6.3: Phase 1 Habitats and National Vegetation Classification;**
  - **Figure 6.4: Peatland Condition Assessment;**
  - **Figure 6.5: Potential Groundwater Dependent Terrestrial Ecosystem ;** and
  - **Figure 6.6a: Protected Terrestrial Mammal Signs.**
- Volume 4: Technical Appendices:
  - **Technical Appendix 6.1: Natural Heritage Information Desk Study;**
  - **Technical Appendix 6.2: Habitat Survey Report;**
  - **Technical Appendix 6.3: Vegetation Assessment Report;**
  - **Technical Appendix 6.4: Protected Terrestrial Mammal Survey Report;**
  - **Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (OBEHMP);**
  - **Technical Appendix 6.6: Peatland Habitat Restoration Opportunities for Neshion Energy Park; and**
  - **Technical Appendix 6.6: Ecology Methodology.**
- Volume 5: Confidential:
  - **Figure 6.6b: Confidential Protected Terrestrial Mammal Signs.**

6.2.7 This chapter should be read alongside other relevant chapters within Volume 2 of the EIA Report (EIAR), particularly Chapter 7: Ornithology, Chapter 8: Hydrology, Hydrogeology, Geology and Soils, and Chapter 3: Design Evolution and Alternatives. In accordance with best practice EcIA guidance, this assessment involved the following key stages:

- Reference to relevant statutory and planning context i.e. legislation, policy and best practice guidance;
- Identification of likely zone of influence of the Proposed Development;
- Identification of potentially important ecological receptors likely to be affected by the Proposed Development, i.e. determination of the baseline conditions;
- Evaluation of important ecological receptors and features likely to be affected by the Proposed Development;
- Identification of likely impacts and magnitude of the Proposed Development works on important ecological receptors;
- Assessment of the likely significant effects of the Proposed Development, including any mitigation and enhancement measures; and
- Assessment of any likely residual significant effects.

6.3 Assessment Methodology

Overview

6.3.1 The ecological survey methodologies are detailed in **Technical Appendix 6.1-6.4 (EIAR Volume 4)**. The assessment follows the principles set out in the Chartered Institute for Ecology and Environmental Management (CIEEM) guidelines for Ecological Impact Assessment (EcIA)[1].

6.3.2 Several terms are used throughout the EIA and EcIA process and are defined as follows:

- A 'receptor' is an element in the environment affected by a development (e.g. a habitat or species in the case of ecology);
- An 'impact' is a change experienced by a receptor (this can be beneficial, neutral or adverse); and
- An 'effect' is the consequences for the receptor from an impact.

6.3.3 Whilst considering a range of potential outcomes that could arise from the Proposed Development, the assessment reports the effects that are considered likely to be significant on the basis of evidence, best practice guidance and professional judgement. It is these likely significant ecological effects that the Applicant is obliged to report, and that the decision maker is obliged to consider.

Scope of Assessment

Potential Impacts Scoped In

6.3.4 The scope of the assessment has been informed by consultation responses detailed in **Technical Appendix 1.1: Consultation Register (EIAR Volume 4).**

6.3.5 In March 2025, the Applicant submitted a Scoping Report (ECU Ref: ECU00006120) and a request for an EIA Scoping Opinion in relation to the Proposed Development to the Energy Consents Unit (ECU). The EIA Scoping Opinion by the Scottish Ministers was received on 27th June 2025. In November 2025 the Applicant submitted a Gatecheck Report to the ECU.

6.3.6 The Ecology Chapter has been informed by the Scoping Opinion and subsequent consultee correspondence. Specifically in relation to designated sites, otter and bog habitats. A meeting was held with NatureScot on 18th November 2025 to discuss the design layout and peatland habitat. For further details see **Technical Appendix 1.1: Consultation Register (EIAR Volume 4).**

6.3.7 The approach used to assess the likely significance of effects of the Proposed Development upon ecological receptors is set in the context of the following best practice guidelines, international commitments, legislation and planning policies relevant to the protection, conservation and enhancement of ecological interests associated with the Proposed Development:

- The Wildlife and Countryside Act (1981, as amended)[2];
- European Biodiversity Strategy (2011 and 2020)[3];
- European Directive 2004/35/CE (2004) on environmental liability with regard to the prevention and remedying of environmental damage[4];
- EC Directive 2009/147/EC on the conservation of wild birds (codified version). Hereafter referred to as the 'Birds Directive[5]';
- EC Directive 1992/43/EEC on the conservation of natural habitats and of wild fauna and flora. Hereafter referred to as the 'Habitats Directive[6]';
- The Conservation (Natural Habitats) Regulations (1994). Hereafter referred to as the 'Habitats Regulations[7]';
- The Conservation of Habitats and Species Regulations (2017)[8];
- The Nature Conservation (Scotland) Act (2004, as amended)[9];
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended)[10];
- National Planning Framework 4 (NPF4, 2023)[11];
- Planning Circular 1 2017: The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017[12];

[2] Wildlife and Countryside Act 1981 (as amended). Available from: https://www.legislation.gov.uk/ukpga/1981/69. [Accessed 19/03/2026]

[3] European Commission (2020). European Biodiversity Strategy. Available from: https://environment.ec.europa.eu/strategy/biodiversity-strategy-2030_en. [Accessed 19/03/2026]

[4] European Commission (2004). Environmental Liability Directive. Available from: https://environment.ec.europa.eu/law-and-governance/environmental-compliance-assurance/environmental-liability_en. [Accessed 19/03/2026]

[5] European Commission (2009). Birds Directive. Available from: https://environment.ec.europa.eu/topics/nature-and-biodiversity/birds-directive_en. [Accessed 19/03/2026]

[6] European Commission (1992). Habitats Directive. Available from: https://environment.ec.europa.eu/topics/nature-and-biodiversity/habitats-directive_en. [Accessed 19/03/2026]

[7] The Conservation (Natural Habitats, &c.) Regulations 1994. Available from: https://www.legislation.gov.uk/uksi/1994/2716/contents. [Accessed 19/03/2026]

[8] The Conservation of Habitats and Species Regulations 2017. Available from: https://www.legislation.gov.uk/uksi/2017/1012/contents. [Accessed 19/03/2026]

[9] Nature Conservation (Scotland) Act 2004 (as amended). Available from:https://www.legislation.gov.uk/asp/2004/6/contents. [Accessed 19/03/2026]

[10] The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. Available from: https://www.legislation.gov.uk/ssi/2017/101/contents. [Accessed 19/03/2026]

[11] National Planning Framework 4 (NPF4). (2023). Scottish Government. Available from: https://www.gov.scot/publications/national-planning-framework-4/. [Accessed 19/03/2026]

[12] Scottish Government. (2017). Planning Circular 1 2017: The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017. Available from: https://www.legislation.gov.uk/ssi/2017/102/contents. [Accessed 19/03/2026]

- Scottish Biodiversity Strategy to 2045: Tackling the Nature Emergency in Scotland (Scottish Government)[13];
- Onshore Wind Policy Statement[14];
- The Scottish Biodiversity List (SBL)[15];
- The Shetland Local Development Plan[16];
- Scottish Government (2025) Planning Guidance: Biodiversity[17].
- Chartered Institute of Ecology and Environmental Management (CIEEM) (2018, updated 2024) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.3[1];
- Scottish Renewables (2025) Guidelines on Streamlining Environmental Impact Assessment for Onshore Wind Farms[18];
- Biodiversity net gain: Good practice principles for development: A practical guide[19];
- Biodiversity Net Gain in Scotland[20];
- Advising on carbon-rich soils, deep peat and priority peatland habitat in development management[21];
- Planning and development: standing advice and guidance documents[22];
- Guidance Note 4: Planning guidance on on-shore windfarm developments. LUPG-GU4 Version 9, (Scottish Environment Protection Agency (SEPA), 2017[23];
- Guidance Note 31: Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and GWDTE. LUPG-GU31 Version 3[24];
- Carbon and Peatland Map[25];

[13] Scottish Government. (2024). Scottish Biodiversity Strategy to 2045: Tackling the Nature Emergency in Scotland (published in draft). Available from: https://www.gov.scot/publications/scottish-biodiversity-strategy-2045/. [Accessed 19/03/2026]

[14] Scottish Government (2022). Onshore Wind Policy Statement Available from: https://www.gov.scot/publications/onshore-wind-policy-statement-2022/. [Accessed 19/03/2026]

[15] Scottish Government (2025). Scottish Biodiversity List. Available from: https://www.gov.scot/publications/scottish-biodiversity-list/. [Accessed 19/03/2026]

[16] Shetland Islands Council (SIC) (2014). The Shetland Local Development Plan Available from: https://www.shetland.gov.uk/development-plans-policy/development-plans/2. [Accessed 19/03/2026]

[17] Scottish Government. (2023). Planning Guidance for Biodiversity. Available from: https://www.gov.scot/publications/scottish-government-draft-planning-guidance-biodiversity/pages/2/#:~:text=This%20Guidance%20sets%20out%20expectations,NPF4%20outcome%20'improving%20biodiversity. [Accessed 19/03/2026]

[18] Scottish Renewables (2025). Guidelines on Streamlining Environmental Impact Assessment for Onshore Wind Farms.

[19] CIEEM, CIRIA and IEMA (2019). Biodiversity Net Gain: Good practice principles for development. A Practical Guide (CIRIA C776a). CIRIA, London. Available from: https://cieem.net/wp-content/uploads/2019/02/C776a-Biodiversity-net-gain.-Good-practice-principles-for-development.-A-practical-guide-web.pdf. [Accessed 19/03/2026]

[20] CIEEM (2020). Biodiversity Net Gain in Scotland. CIEEM Scotland Policy Group. Available from: https://cieem.net/wp-content/uploads/2019/06/Biodiversity-Net-Gain-in-Scotland-CIEEM-Scotland-Policy-Group.pdf.

[21] NatureScot (2023 updated March 2026). Advising on carbon-rich soils, deep peat and priority peatland habitat in development management – Guidance. Available from https://www.nature.scot/doc/advising-peatland-carbon-rich-soils-and-priority-peatland-habitats-development-management. [Accessed 19/03/2026]

[22] NatureScot (2026). Planning and development: standing advice and guidance documents; Available from: https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/planning-and-development-standing-advice-and-guidance-documents. [Accessed 19/03/2026]

[23] Scottish Environment Protection Agency. (SEPA). (2017). Land-Use Planning System SEPA Guidance Note 4: Planning Guidance on Wind Farm Developments. LUPG-GU4 Issue No' 9.

[24] SEPA (2017b). Land-use planning system SEPA guidance note 31: Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems. LUPG-GU31 Version 3.

[25] Scotland's Soils (2016). Carbon and Peatland Maps. Available from: https://soils.environment.gov.scot/maps/thematic-maps/carbon-and-peatland-2016-map/. [Accessed 19/03/2026]

- Guidance on Assessing the Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems[26];
- GB Non-Native Species Secretariat (NNSS) (2025)[27];
- Scottish Government's Code of Practice Non-native Species (2012)[28]; and
- Advice Note 14: Delivery of Biodiversity Enhancement on Local Developments[29].

6.3.8 The recently published Scottish Biodiversity Strategy sets out expectations for implementing and delivering NPF4 policies which support the aim of improving biodiversity. NPF4 (2023)[11] is designed to support Scotland's commitment of reaching net zero emissions and thereby tackling the climate change emergency.

6.3.9 The UK Biodiversity Action Plan (BAP) was the UK Government's response to the Convention on Biological Diversity, to which the UK was a signatory[30]. Action plans for the most threatened species and habitats (called 'UK BAP species and habitats') were set out to aid recovery. A series of conventions have followed and the conclusion of the 15th Conference of Parties to the United Nations Convention on Biological Diversity saw the adoption of the Kunming-Montreal Global Biodiversity Framework[31]. Delivery of this in Scotland is through the Scottish Biodiversity Strategy to 2045 and supersedes the UK BAP.

6.3.10 The new SBL (2025)[15] is a list of animals, plants and habitats that Scottish Government consider to closely reflect the aims of the Scottish Biodiversity Strategy and are of principal importance for biodiversity conservation in Scotland, under the Nature Conservation (Scotland) Act 2004[9]. The SBL therefore supersedes the UK BAP list of species and habitats. Nevertheless, since most current planning policy and SNH/NatureScot guidance requires consideration of, and makes explicit reference to, UK BAP species and habitats and the definitions of SBL habitats are largely based on UK BAP definitions, these are still referred to if necessary.

6.3.11 The Shetland Local Development Plan (2014)[16] contains policies and objectives to conserve and enhance the habitats and species that contribute to the unique character and heritage of Shetland. It has links to Supplementary Guidance on Local Nature Conservation Sites (LNCS) in Shetland and Supplementary Guidance on Natural Heritage. This guidance is provided to aid planning applicants and their agents when considering development in relation to their biodiversity responsibilities. The SIC Delivery of Biodiversity Enhancement on Local Developments advice note (2025)[29] provides advice to developers in relation to NPF4 in the Shetland context.

6.3.12 Through a combination of desk study, direct site knowledge/survey data and NatureScot/CIEEM best practice guidance, ecological surveys were undertaken to help

[26] SEPA (2024). Guidance on Assessing the Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems. Available from: https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.sepa.org.uk%2Fmedia%2Fa1yh0blq%2Fguidance-on-assessing-the-impacts-of-developments-on-groundwater-dependent-terrestrial-ecosystems.docx&wdOrigin=BROWSELINK [Accessed 19/03/2026]

[27] GB Non-Native Species Secretariat (NNSS) (2025). Available from: https://www.nonnativespecies.org/non-native-species/information-portal. [Accessed 19/03/2026]

[28] Scottish Government (2012). Code of Practice Non-native Species. Available from: https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2012/08/non-native-species-code-practice/documents/00398608-pdf/00398608-pdf/govscot%3Adocument/00398608.pdf [Accessed 19/03/2026]

[29] SIC (2025). Advice Note 14: Delivery of Biodiversity Enhancement on Local Developments. Available from: https://www.shetland.gov.uk/blog/planningnews/post/1094/sic-publishes-planning-advice-note-14. [Accessed 19/03/2026]

[30] JNCC, 1994. Biodiversity – The UK Action Plan. https://jncc.gov.uk/resources/cb0ef1c9-2325-4d17-9f87-a5c84fe400bd.

[31] Convention on Biological Diversity. 2022. https://www.cbd.int/gbf.

inform the potential impact assessment of the Proposed Development on key ecological receptors. All the field surveys were undertaken by highly experienced and licensed Alba Ecology ecologists using recognised standard survey methods, during appropriate times of year and under suitable weather conditions for the species concerned. Any departures from standard guidance are explicitly stated and reasons for the any departure are given. Further details of ecological survey methodologies and results can be found in **Technical Appendix 6.1-6.4 (EIAR Volume 4)**.

6.3.13 Potential impacts that are considered in this Chapter are shown in **Table 6.1**.

Table 6.1: Potential Impacts Considered within the Assessment

Potential Impact	**Phase***	
	C	O
Direct habitat loss	X	X
Indirect habitat loss	X	X
Severance	X	X
Pollution	X	X
Physical loss of holts, feeding ground, rest up locations	X	X
Disturbance	X	X

*C=construction, O=operation and maintenance, X=denotes potential impacts considered in assessment

6.3.14 The chapter considers cumulative effects as arising from the addition of the Proposed Development to other cumulative developments, which are the subject of a valid planning application. Operational, under construction and consented developments are considered as part of the cumulative baseline.

Potential Impacts Scoped Out

6.3.15 Ecological impacts arising from the process of decommissioning have been scoped out. An assessment of the ecological impacts of decommissioning the Proposed Development has not been undertaken as part of the EIA because: (i) the future baseline conditions (ecological and other developments) cannot be predicted accurately at this stage, particularly during an era of rapid climate change; (ii) the proposals for decommissioning are not known at this stage although impacts are assumed to be equal or less than that of construction, and (iii) the best practice decommissioning guidance methods would likely change during the lifetime of the Proposed Development and so cannot be predicted at this stage. General decommissioning plans are considered within **Chapter 2: Description of Proposed Development (EIAR Volume 2)**.

6.3.16 The EIA Regulations require all likely significant effects (beneficial and adverse) to be considered and as such impacts that are not likely to result in significant effects have been scoped out of the assessment. This is usually taken to mean site specific related effects, although this is not as straightforward as it first appears to be. For example, the benefits to ecological receptors stemming from the contribution made by the Proposed Development towards countering the climate crisis through renewable energy generation cannot yet be quantified. Nevertheless, it is clear that a wind farm of the size of the Proposed

Development would make a beneficial contribution to meeting national CO_2 emission reduction targets as, helping to combat the climate crisis, a significant threat to habitats and species globally. Uncertainties regarding climate change predictions mean that it is not possible at present to carry out a quantitative assessment of the beneficial impacts of wind farms to ecological receptors. Therefore, these have been scoped out of further consideration although the contribution wind farms make to tackling climate change and thereby supporting biodiversity are explicitly acknowledged in recent Scottish Government polices e.g. NPF4.

6.3.17 Baseline data for freshwater macro-invertebrate and fish is generally used for monitoring water quality and establishing baseline conditions. Should consent be granted for the proposal then baseline aquatic monitoring would be established following standardised methodologies. Macro-invertebrates (with one exception, the globally threatened and legally protected freshwater pearl mussel) and fish will therefore not be subject to further consideration within the EIAR, except in relation to pre-construction baseline survey requirements.

Method of Baseline Characterisation

Extent of the Study Area

6.3.18 The Proposed Development site is illustrated on **Figure 6.1: Ecological Study Area (EIAR Volume 3a)**; The following geographic definitions (**Table 6.2**) are used in this chapter and associated Technical Appendices.

Table 6.2: Geographical Area Definitions: Ecology

Term	Definition
The Site	This refers to all the land within the Proposed Development application boundary.
Proposed Development Footprint	This refers to the footprint of the Proposed Development infrastructure within the Site. It includes the turbines and associated hardstanding, an internal access route network, transformers and underground cables, on-site substation, remote sensing equipment for measuring wind conditions, a borrow pit search area, a battery energy storage system (BESS) equipment and a temporary construction compound.
Study/Search Area	The Study Area or search is dependent on the ecological receptor. It takes into account best practice guidelines and the greatest distance by which a potential impact might likely occur. For example: ▪ The desk study Search Area included the Site plus a 2 km buffer, except for designated sites where a 10 km buffer was used (**Technical Appendix 6.1: Natural Heritage Desk Study (EIAR Volume 4)**). ▪ A 250 m buffer is usually required around all proposed development infrastructure (with >1 m evacuation) to comply with SEPA guidance on GWDTEs[23,24] and to comply with NatureScot's guidance[21] on peatland habitats. Therefore, for the purposes of the habitat surveys Study Area included the Site plus a 250 m buffer except where there were clear boundaries (such as roads, watercourses and the sea) (**Technical Appendix 6.2: Habitat Survey Report (EIAR Volume 4)**). ▪ The Study Area for the protected terrestrial mammal survey included the Site and a 200 m buffer (**Technical Appendix 6.4: Protected Terrestrial Mammal Survey Report (EIAR Volume 4)**).

Desk Study

6.3.19 The Natural Heritage Desk Study (**Technical Appendix 6.1: Natural Heritage Desk Study (EIAR Volume 4)**) was conducted following CIEEM best practice guidelines[1, 32]. It considered:

- Designated site information;
- Existing records of protected/priority/notable species for the Site;
- Existing records of protected/priority/notable species for the surrounding area;
- Habitat information where available; and
- Soil and geological information for the site.

6.3.20 The desk study was conducted using the relevant sources of data including the NatureScot SiteLink website, the Shetland Biological Records Centre (SBRC), the National Biodiversity Network Atlas (NBNA), NatureScot shapefiles provided on their Natural Spaces data-share facility. All known records of important ecological receptors within a 2 km radius of the Site were identified. All statutory designated sites with ecological qualifying features within a 10 km radius of the Site were identified (**Figure 6.1: Ecological Study Area (EIAR Volume 3a)**).

Field Surveys

6.3.21 In accordance with best practice guidance on streamlining EIA for onshore wind farms [18], full survey methods do not need to be presented in EIA Reports where they follow recognised standard methods (e.g. Joint Nature Conservation Committee (JNCC)[33], 2010 and Rodwell, 2006[34]). If proposed methods deviate from established best practice, then full details should be provided. The following surveys were undertaken across the Study Area.

BASELINE HABITAT SURVEYS

6.3.22 Habitat survey work was undertaken in July 2022 and comprised of a Phase 1 Habitat survey and a National Vegetation Classification (NVC) survey. These followed standard guidance [33, 34]. There was also an assessment on potential groundwater dependent terrestrial ecosystems (GWDTE) using standard guidance (e.g. SEPA, 2017)[35]. As much of the habitat was peatland, a Peatland Condition Assessment (PCA) was also undertaken as part of the survey using standard guidance[36].

6.3.23 Further details on the habitat survey methods, limitations and results can be found in **Technical Appendix 6.2: Habitat Survey Report: Habitat Survey Report (EIAR Volume 4)**.

VEGETATION ASSESSMENT

6.3.24 A vegetation assessment was undertaken in June 2025 and December 2025. This survey was specifically in response to NatureScot's guidance (2023) on peatland habitats and

[32] CIEEM. 2017. Guidelines for Preliminary Ecological Appraisal, 2nd edition. CIEEM.

[33] JNCC. 2010. Handbook for Phase 1 habitat survey – a technique for environmental audit , 2010 Updated 2016. Available from: https://jncc.gov.uk/resources/9578d07b-e018-4c66-9c1b-47110f14df2a. [Accessed 19/03/2026]

[34] Rodwell, J.S. 2006. National Vegetation Classification Users' Handbook. JNCC, Peterborough.

[35] Scottish Environment Protection Agency. (SEPA). (2017). Land-Use Planning System SEPA Guidance Note 4: Planning Guidance on Wind Farm Developments. LUPG-GU4 Issue No' 9.

[36] Peatland Action. (2016). Peatland Condition Assessment Guide. Available from: https://www.nature.scot/sites/default/files/2023-02/Guidance-Peatland-Action-Peatland-Condition-Assessment-Guide-A1916874.pdf [Accessed 19/03/2026]

considers aspects such as peat formation, natural surface patterns and the specific aspects of the SSSI selection criteria for blanket bog[37]. The NatureScot 2023 guidance was updated in March 2026. There is no clear method in NatureScot's guidance to assess these aspects. The survey methods therefore draw upon various published information and guidance [38, 39, 40, 21] and uses well established vegetation assessment techniques, namely quadrats and transects. This has been completed for the Proposed Development Footprint to provide a detailed, evidence-based and transparent approach to address NatureScot's considerations of the blanket bog habitat in relation to the national interest, SSSI selection criteria and whether the blanket bog is of "*high quality*", meets the SSSI selection criteria and is actively forming peat with indicator species and has features of near natural condition.

6.3.25 The proposed design layouts were visited in June 2025 and December 2025. A total of 18 locations were assessed using quadrat and transect data.

6.3.26 Quadrat data was taken for a representative vegetation sample and the percentage cover was recorded for each plant species along with other relevant parameters. Transects were walked to assess the proportion of vegetation and the number of erosion features and drainage ditches were assessed. The surrounding area was searched for specific features including bog pools and *Sphagnum* hummocks.

6.3.27 This approach to assessing the vegetation at the Proposed Development Footprint has been accepted by the regulators and councils and has been used at Public Local Inquiry (PLI) to provide information on peatland habitats in line with NatureScot guidance[41]. Full methods, results and limitations are provided in **Technical Appendix 6.3: Vegetation Assessment Report (EIAR Volume 4)**.

PROTECTED TERRESTRIAL MAMMAL SURVEYS

6.3.28 Protected terrestrial mammal surveys followed best practice guidance (e.g. NatureScot's Standing Advice for planning Consultants at the time the surveys and assessment were undertaken)[22] for otter and mountain hare. Further information is provided in **Technical Appendix 6.4: Protected terrestrial mammal Survey Report (EIAR Volume 4)**.

Method of Assessment

Overview

6.3.29 Detailed information on the assessment methodology, including criteria for assessing sensitivity of receptors, Magnitude of Impact and Level of Effect, as well as cumulative

[37] JNCC. 1994. Guidelines for the Selection of Biological SSSIs. Part 2: Detailed Guidelines for Habitats and Species Groups. Chapter 8 Bogs. JNCC, Peterborough.

[38] Lindsay, R. Birnie, R. and Clough, J. (2014a).IUCN UK Committee Peatland Programme Briefing Note No.1 Peat Bog Ecosystems: Key Definitions. IUCN UK Peatland Programme.

Lindsay, R. Birnie, R. and Clough, J. (2014b).IUCN UK Committee Peatland Programme Briefing Note No.2 Peat Bog Ecosystems: Structure, Form, State and Condition. IUCN UK Peatland Programme.

Lindsay, R. Birnie, R. and Clough, J. (2014c).IUCN UK Committee Peatland Programme Briefing Note No.9 Weathering, Erosion and Mass Movement of Blanket Bog. IUCN UK Peatland Programme.

[39] Lindsay, R. (1995). Bogs: The Ecology, Classification and Conservation of Ombrotrophic Mires. SNH.

[40] Glenk, K., Martin-Ortega, J., Byg, A. 2017. Online Peatland Condition Assessment Support Tool. Peatland Action, Scottish Natural Heritage.

[41] NatureScot (2023, updated 2026). Advising on Peatland Habitats and Carbon-Rich Soils in Development Management. Available at: https://www.nature.scot/doc/advising-peatland-habitats-and-carbon-rich-soils-development-management [Accessed 02/06/2026]

effects, is provided in **Technical Appendix 6.7: Ecology Methodology (EIAR Volume 4)**.

Limitations and Assumptions

6.3.30 The level of certainty of impact prediction varies depending upon a range of parameters. For some elements e.g. land-take it is relatively straightforward to assess and quantify the area of habitat that is likely to be lost to development infrastructure and therefore quantify potential impacts of land-take on the habitats present. However, other impacts are less certain because there can be a range of possible scenarios. The main limitations in this assessment are common to most ecological assessments because:

- Baseline surveys undertaken are based on sampling techniques, not absolute censuses. Results give an indication of the numbers of ecological receptors recorded at the particular times that surveys were carried out. Species occurrence changes over time and therefore the results presented in this EIAR are snapshots in time. Importantly, no information gaps were identified in the baseline survey data that would prevent assessments in line with the requirements of the EIA Regulations to be undertaken.
- Putting ecology survey results into a wider geographical context is sometimes challenging because most species and habitats have not been systematically surveyed beyond the Study Area. Thus, defining a receptor population as locally or regionally important is potentially difficult because local or regional population estimates do not exist for many taxa and habitats. Whenever such uncertainty exists, professional judgement and published evidence is used and populations in the Study Area or Site have been assumed to be at their highest potential level of geographical/ecological importance.

6.3.31 Where there is uncertainty, this is identified and reported transparently, along with the measures taken to reduce it, assumptions made, and an explanation as to the extent that any uncertainties are likely to affect the conclusions. In circumstances where there is uncertainty; evidence, expert opinion, best practice guidance and professional judgement have been used to evaluate what is biologically likely to occur if the Proposed Development is constructed. Where assumptions within the assessment are made, these are explicitly identified and explained. Similarly, limitations in methods and knowledge of species' ecology are also identified and discussed, particularly where this is likely to affect the outcome of the assessment.

6.3.32 Within these constraints, the baseline data collected has allowed a robust and thorough assessment of potential effects. Further account of limitations, where relevant to each technical appendix, is provided in **Technical Appendices 6.1-6.4 (EIAR Volume 4)**.

6.4 Baseline Conditions

Desk Study - Designated Sites

6.4.1 A total of 11 statutory designated sites with ecological features, within a 10 km radius of the Application Boundary, have been identified (**Technical Appendix 6.1: Natural Heritage Desk Study (EIAR Volume 4)**). Of these, eight statutory designated sites hold ecological qualifying features (**Table 6.4**), and one is relevant to the marine environment.

Table 6.4: Statutory Designated Sites with Qualifying Ecological Receptors				
Site	**Designation**	**Siz**	**Distance/Direction**	**Qualifying Features**
Yell Sound Coast	SAC	1,544.4 ha	0.0 km, north	Harbour seal and otters.
Sullom Voe	SAC	2,691.4 ha	0.0 km, north and west	Lagoons, reefs; and shallow inlets and bays.
Ronas Hills – North Roe	SAC	4,903.5 ha	8.5 km, northwest	Acid peat-stained lakes and ponds, acidic scree; alpine and subalpine heaths, blanket bog; clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels, dry heath and wet heathland with cross-leaved heath.
Ronas Hill - North Roe and Tingon	Ramsar	5,474.3 ha	8.5 km, northwest	Blanket bog.
Ronas Hills – North Roe	SSSI	4,900.9 ha	8.5 km, northwest	Arctic water flea, blanket bog; montane assemblages and scrub.
Burn of Valayre	SSSI	5.5 ha	6.4 km, southwest	Scrub.
Dales Voe	SSSI	5.6 ha	4.7 km, south	Saltmarsh.
Yell Sound Coast	SSSI	868.8 ha	0.0 km, north	Otter.

6.4.2 There is a single Local Nature Conservation Site (LNCS) within the Search Area, Bordigarth LNCS, which is primarily designated for breeding birds. Further details can be found in **Chapter 7: Ornithology (EIAR Volume 2)** and **Technical Appendix 6.1: Natural Heritage Desk Study (EIAR Volume 4).**

Desk Study – Species and Habitats

6.4.3 Full details of the Natural Heritage Desk Study including methods, results and limitations can be found in **Technical Appendix 6.1: Natural Heritage Desk Study (EIAR Volume 4).**

6.4.4 This desk study identified several potentially important ecological sensitivities within the Study Area, as far as existing and freely available data allows. Desk-based studies of this nature have limitations, such as the reliability of third-party records, the coverage of reported studies and the age of data (former occurrence does not necessarily equate present occurrence).

6.4.5 There was a relatively high number of records for the Search Area for both the NBNA data search and the SBRC data.

6.4.6 The SBRC search recorded some species as scarce or rare in Shetland (**Table 6.5**). It should be noted that some of these species are very common in Mainland Scotland, such as rosebay willowherb. A small number of the species records from the SBRC search are on the SBL although some of these species are non-native in Shetland such as hedgehog and mountain hare. The former having caused ecological problems elsewhere when they have been introduced e.g. Western Isles.

Table 6.5: Species listed in the SBRC dataset from the Study Area which are on the Scottish Biodiversity List (SBL) or noted as scarce or rare by SBRC.		
Species name	**Common name**	**Status/Listing**
Lepidozia cupressina	Rock fingerwort	Scarce (Shetland)

Table 6.5: Species listed in the SBRC dataset from the Study Area which are on the Scottish Biodiversity List (SBL) or noted as scarce or rare by SBRC.		
Species name	**Common name**	**Status/Listing**
Nowellia curvifolia	Wood-rust	Scarce (Shetland)
Spergularia marina	Lesser sea-spurrey	Scarce (Shetland)
Atriplex prostrata agg.	Atriplex prostrata agg.	Rare (Shetland)
Veronica beccabunga	Brooklime	Scarce (Shetland)
Eleocharis uniglumis	Slender spike-rush	Scarce (Shetland)
Carex curta	White sedge	Scarce (Shetland)
Schistidium strictum	Upright brown grimmia	Rare (Shetland)
Barbula convoluta var. convoluta	Lesser bird's-claw beard-moss	Rare (Shetland)
Mnium hornum	Swan's-neck thyme-moss	Scarce (Shetland)
Diphasiastrum alpinum	Alpine clubmoss	Scarce (Shetland)
Chamerion angustifolium	Rosebay willowherb	Rare (Shetland)
Ruppia cirrhosa	Spiral tasselweed	SBL
Cochlearia officinalis subsp. scotica	Scottish scurvygrass	SBL
Cercyon (Cercyon) quisquilius	Cercyon (Cercyon) quisquilius	SBL
Timandra comae	Blood-Vein	SBL
Dasypolia templi	Brindled ochre	SBL
Apamea remissa	Dusky brocade	SBL
Celaena haworthii	Haworth's minor	SBL
Celaena leucostigma	Crescent	SBL
Erinaceus europaeus	Hedgehog	SBL
Pipistrellus nathusii	Nathusius's pipistrelle	SBL
Lepus timidus	Mountain hare	SBL

6.4.7 The data from the NBNA data search had particularly numerous records for some taxonomic groups e.g. there was 195 species of Annelida (worms), 150 species of fungi and many aquatic and marine invertebrates recorded in the Study Area. This indicates a good base level of knowledge for these groups. However, there was a relatively paucity of biological records available for other taxonomic groups, such as some invertebrate groups e.g. spiders, indicating either that there was a low level of biodiversity within the Study Area and/or a low level of biological recording for some taxonomic groups. It is worth noting that the historic data supplied by data providers is just that, historic. **Table 6.6** provides the species reported in the NBNA data search which are on the SBL or are EPS.

Table 6.6: Species listed in the NBNA dataset from the Study Area which are EPS or on the SBL		
Species name	**Common name**	**Status/Listing**
Anguilla anguilla	European eel	SBL
Lutra lutra	Otter	SBL, EPS
Lepus timidus	Mountain hare	SBL
Pannaria rubiginosa	A fungi	SBL
Salmo trutta	Brown/sea trout	SBL

Table 6.6: Species listed in the NBNA dataset from the Study Area which are EPS or on the SBL		
Species name	**Common name**	**Status/Listing**
Salmo salar	Atlantic salmon	SBL
Cylindroporella tubulosa	A bryozoan	SBL
Phoca vitulina	Common seal	SBL

6.4.8 Otter is a notable species within the Study Area and is listed as an EPS and is a qualifying feature in adjacent designated sites. The Yell Sound Coast SSSI Citation notes that this designated site supports at least a fifth of Shetland's otter population and 2.5 % of the British otter population[42].

6.4.9 There were a limited number of publicly accessible records of the habitats in and around the Search Area, with most information relating to the marine environment.

6.4.10 The Carbon and Peatland Map (2016)[25] predicts that much of the Study Area is Class 1 peatlands, with other areas mostly predicted to be Class 4 or Class 5. Class 1 peatland is defined as "*nationally important carbon-rich soils, deep peat and priority peatland habitat and areas likely to be of high conservation value*". It should be noted that the Carbon and Peatland Map is a high-level predictive planning tool which provides an indication of the likely presence of peat on each individually mapped area, at a coarse scale. The map is not a definitive account of where important carbon rich soils, deep peat and priority peatland habitat exist.

6.4.11 It is important to recognise that a lack of information for a species (or indeed Class/Order) or habitat does not necessarily mean absence, and previous historical occurrence does not necessarily mean current presence.

Habitat Surveys

6.4.12 Full details of the habitat surveys including methods, results and limitations can be found in **Technical Appendix 6.2: Habitat Survey Report (EIAR Volume 4)** and **Figures 6.3-6.5 (EIAR Volume 3a)**.

6.4.13 Field survey work was undertaken in July 2022 and included a Phase 1 Habitat Survey, an NVC survey and assessment of potential GWDTE. As much of the habitat was peatland, a PCA was also undertaken as part of the survey.

6.4.14 The Study Area was characterised by blanket bog and dry modified bog with the most common NVC community mapped across the Study Area being M17b *Trichophorum germanicum – Eriophorum vaginatum* blanket mire community, *Cladonia* spp. sub-community. Less frequently recorded habitats including dry heath, wet heath, acid grassland, coastal grassland and marshy grassland. There were multiple flushes across the Study Area, which were considered to be associated with historic drainage ditches. These habitats and vegetation community types are typical for Shetland.

6.4.15 The Phase 1 Habitat and NVC survey map is shown in **Figure 6.3: Phase 1 Habitats and NVC (EIAR Volume 3a)**. A list of habitats and vegetation communities recorded in the Study Area are displayed in **Table 6.7.**

[42] NatureScot. no date. Yell Sound Coast SSSI Citation. Available from: https://www.nature.scot/sites/default/files/site-special-scientific-interest/1686/sssi-citation.pdf [Accessed 19/03//2026]

Table 6.7: The total area of each of the Phase 1 Habitat/NVC community found in the Study Area.			
Phase 1 Habitat	**NVC Community**	**Area (ha)**	**% of Study Area**
Acid flush	M29, M6b, M6c and mosaics	5.8	0.6
Acid grassland	U4, U5 U6 and mosaics	49.5	5.4
Bare peat	M3	0.1	0
Blanket bog	M2, M17b, M19a and mosaics	560.6	60.8
Coastal grassland	MC10a	1.2	0.1
Dry heath	H10a	49.2	5.3
Dry heath/acid grassland	H10a, U4, U5, U6 and mosaics	28.1	3
Dry modified bog	Non NVC community and mosaics	157.1	17
Improved grassland	MG6	10.9	1.2
Marshy grassland	MG10a, M28 and mosaics	8.9	1
Open water	-	24.7	2.7
Private	-	3.2	0.3
Road	-	1.5	0.2
Sand	-	0	0
Wet heath	M15c and mosaics	4.7	0.5
Wet modified bog	-	17.3	1.9
Total		922.7	100

6.4.16 The condition of the blanket bog was described using standard PCA terminology. The condition of the peatland habitat was very variable across the Study Area, and was on a continuum from very wet, high quality blanket bog in Near-Natural condition to Modified and Drained bog. There were widespread degraded areas that were Actively Eroding.

6.4.17 Some of the habitats in the Study Area were defined as wetland habitat and potential GWDTE. The NVC communities M6 *Carex echinata – Sphagnum fallax* mire and M29 *Hypericum elodes – Potamogeton polygonifolius* soakaway community are considered to be potentially highly groundwater dependent. Further assessment of GWDTE from qualified hydrologist are provided in **Chapter 8: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)** which reports that all potential GWDTE were found to not be groundwater dependent due to several factors including; low productivity bedrock aquifers, ombrotrophic bog habitats being present, and that no features identifying groundwater emergence were noted during site walkover. Analysis in **Chapter 8: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)** found that the surface water flow pathways further indicated that areas of potential GWDTEs were likely ombrogenous, and not groundwater fed but as 'flush-like' habitats within existing cut drains and eroded peat. There was no evidence of groundwater emergence at the site (**Chapter 8: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)**).

Vegetation Assessment Survey

6.4.18 Full details of the vegetation assessment surveys including methods, results and limitations can be found in **Technical Appendix 6.3: Vegetation Assessment Report (EIAR Volume 4).**

6.4.19 The Proposed Development Footprint was walked in June and December 2025 using a design layout that was current at that time. The vegetation at 18 locations was assessed using

quadrat and transect data. The track and infrastructure routes were carefully walked, and target notes made.

6.4.20 The vegetation was considered in relation to NatureScot guidance[21] on peatland habitats. It considered aspects such as peat formation, natural surface patterns and the specific aspects of the SSSI selection criteria for blanket bog[37].

6.4.21 The Proposed Development Footprint was visited, and the vegetation present was systematically reported on in 2025, providing up to date, detailed and robust empirical data for consideration and assessment. Due to careful and deliberate design, the vegetation at the turbine locations was not blanket bog in Near-Natural condition (which had been deliberately avoided), but blanket bog in a modified condition. This was demonstrated by comparing the data of Near-Natural bog to the data along the Proposed Development Footprint.

6.4.22 Impacts from current and historic land management practices were evident, including sheep grazing, drainage, peat cutting and potentially historic burning.

6.4.23 The peatland habitat potentially impacted by the Development Footprint was M17b and M19. Based on NatureScot guidance, these vegetation types have the potential to be classed as being of National Interest. However, key aspects, such as likely peat formation, natural surface patterning, indicator species and features of near natural condition were considered in detail. Whilst the Near-Natural bog within the Study Area demonstrated these features, the blanket bog along the Proposed Development Footprint did not.

6.4.24 The vegetation within the Proposed Development Footprint did not meet the SSSI selection criteria and was not considered to be of the highest quality. Detailed evidence to support this is provided in **Technical Appendix 6.3: Vegetation Assessment Report (EIAR Volume 4)**.

Protected Terrestrial Mammals

6.4.25 Protected terrestrial mammal surveys for the Study Area are provided in Technical Appendix 6.4: Protected Terrestrial Mammal Survey Report (EIAR Volume 4).

Otter

6.4.26 All watercourses, terrestrial and riparian habitats within the Study Area were fully surveyed, where safe to do so, following standard best practice otter survey guidance. Most of the Study Area was relatively easy to survey, with exceptions being some areas at the coastal cliffs. Where these were present, binoculars were used to examine these inaccessible areas. Surveyors did not enter the Sullom Voe compound along the western buffer edge.

6.4.27 During multiple surveys in 2023 and 2024 several of otter spraints, an active holt and potential couches were recorded along the coast and main watercourses and waterbodies within the Study Area (**Figure 6.6: Protected Terrestrial mammal Signs (EIAR Volume 3a)** and **Table 6.8**). Evidence of feeding was also recorded.

Table 6.8: Non-Confidential Otter signs and potential features recorded in the Study Area in 2023-2024

Grid reference	Sign/potential feature
HU 41605 78394	Feeding remains
HU 41582 78266	Spraint
HU 41026 77671	Spraint

Table 6.8: Non-Confidential Otter signs and potential features recorded in the Study Area in 2023-2024	
Grid reference	**Sign/potential feature**
HU 40940 77604	Spraint
HU 41312 77881	Spraint
HU 42553 73998	Spraint
HU 42083 74630	Spraint
HU 42290 74635	Spraint
HU 42299 74676	Feeding remains
HU 42902 77221	Spraint

6.4.28 The presence of signs of otter recorded within the Study Area were largely restricted to the coast and watercourses/waterbodies. The highest proportion of signs recorded were in the coastal areas of the north-western edge of the Site boundary. This included spraints, feeding sites, couches and an active holt. This suggests that there is a resident otter(s) in the area and that the coastal areas are the most important for them. The relatively small number of spraints, feeding signs and potential couches within the central parts of the Study Area suggest that while they sometimes utilise these parts of the Study Area, it is not necessarily important for them.

6.4.29 The location of the otter holt was outwith the Yell Sound Coast SAC of which otter is a qualifying feature, by approximately 100-200 m. However, given the evidence of otters all along the coastal areas, much of which falls within the SAC, it is reasonable to assume that the otters utilising the active holt are associated with and functionally linked with the SAC. For further details see **Technical Appendix 6.4: Protected Terrestrial Mammal Survey Report (EIAR Volume 4)**.

Mountain Hare

6.4.30 Mountain hares were recorded regularly across the Study Area, usually being flushed either from underfoot or nearby during multiple surveys in 2023 and 2024. Signs of mountain hare (droppings, scrapes) were recorded but could easily be confused with those of European rabbits which were also present within the Study Area (particularly in the grassier areas).

6.4.31 Two parts of the Study Area had a notably higher incidence of sightings of mountain hare. most being recorded within 200-300 m of the northern side of Sand Water and at the northern edge of the Study Area (**Figure 6.6: Protected Terrestrial Mammal Signs (EIAR Volume 3a)**). This was breeding behaviour, with several males pursuing females in both 2023 and 2024. For further details see **Technical Appendix 6.4: Protected Terrestrial Mammal Survey Report (EIAR Volume 4)**.

Future Baseline

6.4.32 In the absence of the Proposed Development (the 'do nothing' scenario), the Study Area is likely to remain characterised by blanket bog and dry modified bog habitats, the condition of which is currently highly variable, with near-natural and actively eroding conditions recorded within the Site. Sheep grazing is likely to continue and so would further degrade the bog habitats. The otter and mountain hare (non-native) are likely to continue to be present within the Site boundary. Further details on otter, mountain hare, habitats and their conditions are provided in **Technical Appendix 6.2: Habitat Survey Report (EIAR**

Volume 4) and Technical Appendix 6.4: Protected Terrestrial Mammal Report (EIAR Volume 4).

6.4.33 The current baseline is considered a reasonable and robust basis for assessment as it is based on standard ecological surveys following best practice guidance.

Determining Importance and Receptors Brought Forward for Assessment

6.4.34 The importance of ecological receptors, identified in the desk study, field surveys, scoping, knowledge of the site and professional judgement, are considered in **Table 6.9** following CIEEM best practice guidance[1]. Importance evaluation took into account a multitude of factors as recommended by best practice guidance including diversity and rarity.

6.4.35 Based on the importance evaluation, results of the desk study, knowledge of the Site, field surveys, scoping comments, legal protection and professional judgement, the following potentially important receptors were identified for further consideration:

- Designated sites;
- Bog habitats (blanket bog, wet modified bog and dry modified bog combined); and
- Otter.

6.4.36 Other species and habitats (such as those identified in the desk study), were mainly scoped out of further consideration on the basis of:

- Embedded mitigation being suitable and substantive to ensure no likely significant effects would occur on a specific ecological receptor;
- Survey results;
- Species being non-native in the Shetland context;
- Habitats within the Study Areas compared to the species' preferred habitat; and
- Population size of the potentially important species on a geographical basis.

6.4.37 **Table 6.9** summarises the evaluation of potentially important ecological receptor populations/features within the Study Area and provides comments where features were scoped out of further assessment.

Table 6.9: Summary evaluation of potentially important ecological receptors.

Potentially Important Receptor	Evaluation of Potentially Important Receptor Population/Feature within the Study Area	Taken Forward For Further Assessment?
Designated sites	Nationally and internationally important designated sites adjacent to the Site. These included Yell Sound Coast SSSI and Yell Sound Coast SAC.	Yes
Otter	Legally protected species which now are generally considered relatively common and widespread in Scotland. Non-native species in Shetland. Otters are along the coastline of the Study Area are considered to be functionally linked to those of the SAC and SSSI and so are considered of national and international importance. Otters have moderate sensitivity to human activities, with resting places and holts considered highly sensitive. Although, note that otters are present around SVT and Shetland Gas Plant and so can tolerate some level of disturbance. Status: Vulnerable in Scotland, GB population estimate 11,000, (increasing)[43].	Yes

[43] Mammal Society. (2018). Britain's mammals 2018: The Mammal Society's Guide to their population and Conservation Status. The mammal Society.

Table 6.9: Summary evaluation of potentially important ecological receptors.		
Potentially Important Receptor	**Evaluation of Potentially Important Receptor Population/Feature within the Study Area**	**Taken Forward For Further Assessment?**
	Otter signs recorded within the Study Area during targeted surveys in 2023 and 2024 including feeding signs, spraints, potential couches and a holt.	
Mountain hare	Legally protected species (since 2021) generally considered relatively common and widespread in Scottish uplands. Non-native species in Shetland. Mountain hares were widespread in the Study Area in the 2023 and 2024 surveys, with particular higher activity areas identified. Mountain hares were introduced to Shetland in the 1900's. Neither NatureScot nor CIEEM provide guidance on determining the value of non-native species (with the exception of otter, which is a European Protected Species and so its importance is elevated), so professional judgement and general guidance from the Invasive Non-native Species Framework Strategy for Great Britain has been used[44]. This suggests that non-native species should not be considered as valuable or important ecological receptors in a Shetland context. This approach was also used and accepted at the Viking Wind Farm, Beaw Field Wind Farm, and the SaxaVord Space Centre planning determinations. Status: Near-threatened in Scotland, non-native in Shetland, GB population estimate 135,000[43]. Mountain hare have previously been shot for sport and culled e.g. around plantations but are now fully legally protected. This means that anyone who intentionally or recklessly kills, injures or takes mountain hare without a licence will be acting unlawfully. As a non-native species in Shetland, mountain hare has been scoped out of further assessment as no likely significant effects are predicted. However, as they are legally protected further details are provided.	No
Freshwater pearl mussel	Legally protected species. Status: Listed as Critically Endangered in Europe by the International Union for Conservation of Nature (IUCN). Scotland population declining; known to be extinct in 73 watercourses, not successfully recruiting in 44 watercourses and evidence of recent successful recruitment in 71 watercourses[45]. Known to be present in one Shetland watercourse. The Study Area watercourses, specifically the Aywick Burn, Burn of Neshion Water, Burn of Sandwater, Burn of Crooksetter and Burn of Toft, were assessed for potential freshwater pearl mussel habitat suitability by Dr Peter Cosgrove (FCIEEM), a highly experienced freshwater pearl mussel ecologist in June 2025. None of the tiny watercourses held potentially suitable instream habitats. The flows were considered insufficient, and potentially ephemeral in most instances. No evidence of freshwater pearl mussel occurrence was recorded, and the surveyed watercourses were all considered to be unsuitable. On this basis, freshwater pearl mussel is scoped out of further consideration.	No
Macro-invertebrate and fish	Baseline data for freshwater macro-invertebrate and fish is generally only used for monitoring water quality and establishing baseline conditions (unless rare/legally protected species are known to be present). Therefore, macro-invertebrates and fish have been scoped out of further assessment. However, should consent be granted for the Proposed Development then baseline	No

[44] Department for Environment, Food & Rural Affairs (DEFRA) (2015 and updates). The Great Britain invasive non-native species strategy. Available from: https://www.gov.uk/government/publications/the-great-britain-invasive-non-native-species-strategy. [Accessed 19/03/2026]

[45] Cosgrove, P., Watt, J., Hastie, L., Sime, I., Shields, D., Cosgrove, C., Brown, L. Isherwood, I. and Bao, M. (2016). The status of the freshwater pearl mussel *Margaritifera margaritifera* (L.) in Scotland: extent of change since 1990s, threats and management implications. Biodiversity and Conservation 25: 2093-2112.

Table 6.9: Summary evaluation of potentially important ecological receptors.		
Potentially Important Receptor	**Evaluation of Potentially Important Receptor Population/Feature within the Study Area**	**Taken Forward For Further Assessment?**
	aquatic surveys and subsequent monitoring would be established following standardised methodologies in accordance with best practice guidance.	
Semi-natural habitats	Locally, regionally, nationally and internationally important habitats present in Shetland. Within the Study Area, the quantity/quality of semi-natural habitats evaluated as locally important, except for the blanket bog and bog pools. Blanket bog is within the Proposed Development Footprint and direct negative impacts are predicted for blanket bog habitat. Direct positive impacts are also predicted through the OBEHMP. For further details see **Technical Appendix 6.2: Habitat Survey Report (EIAR Volume 4), Technical Appendix 6.3: Vegetation Assessment Report (EIAR Volume 4)** and **Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4).**	Blanket bog taken forward only
GWDTE	Potentially important GWDTE habitats present in the Study Area. GWDTE are protected by the Water Framework Directive. Several potential GWDTEs within 250 m of the proposed development including some direct land-take. For further details see **Technical Appendix 6.2: Habitat Survey Report (EIAR Volume 4)**. Further assessment of GWDTE from qualified hydrologists are provided in **Chapter 8: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)** which reports that all potential GWDTE found to not be groundwater dependent. Therefore, GWDTE have been scope out of the assessment.	No
Plants	The plant species recorded in the Study Area were common and widespread across the UK, Scotland and Shetland. No plant species recorded within the Study Area are on the SBL or on the list of Shetland endemics. The plants within the Study Area were evaluated as being of local importance and low sensitivity. Therefore, plants have been scoped out of further assessment. For further details see **Technical Appendix 6.1: Natural Heritage Desk Study (EIAR Volume 4)** and **6.2: Habitat Survey Report (EIAR Volume 4)**.	No
Other mammals	The desk study (**Technical Appendix 6.1: Natural Heritage Desk Study (EIAR Volume 4)**) identified hedgehog and Nathusius's pipistrelle as being recorded within the Study Area. Nathusius's pipistrelle is a rare, occasional migrant/vagrant. Note, that there are no resident bats in Shetland. All terrestrial mammal species in Shetland are non-native having been introduced by humans over time[46]. In relation to bats NatureScot standing advice[47] states: "Shetland is the only part of Scotland where bats are not resident, and so do not require any consideration." As already stated, neither NatureScot nor CIEEM provide guidance on determining the value of non-native species (with the exception of otter, which has is an EPS), so professional judgement and general guidance from the Invasive Non-native Species Framework Strategy for Great Britain has been used [44]. This suggests that non-native species should not be considered as valuable or important ecological receptors. This approach was also used and accepted at the Viking Wind Farm, Beaw Field Wind Farm, and the SaxaVord Space Centre planning determinations.	No

[46] Johnson. (1999). A Naturalist's Shetland. Poyer Natural History.

[47] NatureScot (2024). Standing Advice for Planning Consultations – Bats. Available at: https://www.nature.scot/doc/standing-advice-planning-consultations-bats [Accessed 02/06/2026]

Table 6.9: Summary evaluation of potentially important ecological receptors.		
Potentially Important Receptor	**Evaluation of Potentially Important Receptor Population/Feature within the Study Area**	**Taken Forward For Further Assessment?**
	Therefore, hedgehog and Nathusius's pipistrelle have been scoped out of further consideration.	
Butterflies and moths	Several moth species were recorded in the SBRC data and are on the SBL. The SBRC grid reference data did not have any species within the Study Area (although some had a 1 km grid refences associated with it). Whilst no targeted surveys were conducted for butterflies and moths, upland habitats generally can support moderate assemblage of these species and so it is considered likely there are several species present in the Study Area. It is considered unlikely that butterflies and moths would be significantly adversely impacted though the Proposed Development because: ▪ Other than a potentially small (**Negligible**) land-take of possible habitat, no significant impacts are considered likely from the Proposed Development on Lepidoptera species or habitats which support Lepidoptera; ▪ No nationally rare Lepidoptera species are known from the area, only relatively widespread SBL species. All five SBL moth species identified in the desk study: blood-vein, brindled ochre, dusky brocade, Haworth's minor and the crescent are typically common/widespread across suitable (mostly) moorland habitats in Britain; ▪ The Study Areas are not specially designated for these species, or habitats which support these species; and ▪ Any other potential very small impacts are unlikely to increase from the baseline of being located near an existing oil and gas processing facility. Therefore, butterflies and moths have been scoped out of further assessment. However, the planned peatland restoration work and nature network restoration work, planned as part of the OBEHMP, would likely benefit those Lepidoptera species reliant on blanket bog/moorland habitats.	No
Fungi	A fungi species (*Pannaria rubiginosa*) was recorded in the NBNA search and is on the SBL. However, this species is reported to grow on mature trees. There were not trees within the Study Area, and on this basis, it has been scoped out of further assessment.	No

Mountain Hare – non-native, legally protected species

6.4.38 Mountain hare is a legally protected species. Baseline surveys suggest the species is widespread within the Study Area. Mountain hares are non-native in Shetland. Given the context of non-native species, and the precedent set at other development sites in Shetland, they have not been considered as valuable or important ecological receptors, and no likely significant effects are predicted as a consequence of the Proposed Development. Therefore, they have been scoped out of further assessment.

6.4.39 However, since 2021, mountain hares have been legally protected by the Wildlife and Countryside Act 1981 (as amended). It is an offence to intentionally or recklessly:

- kill, injure or capture a mountain hare;
- disturb a mountain hare in its place of shelter; or

- damage, destroy or obstruct access to a mountain hare's place of shelter[48].

6.4.40 It seems likely, given the widespread occurrence of mountain hares across the Study Area in 2023 and 2024 surveys, that land-take associated with site construction work could destroy or obstruct a structure used by mountain hares for shelter or protection or cause direct mortality of mountain hare and therefore a NatureScot licence to undertake such works would likely be required.

6.4.41 According to NatureScot standing guidance on mountain hares: "If mountain hares are confirmed as present on a development site, a licence to disturb them and destroy resting places is likely to always be required before any work on site can commence, irrespective of the season"[48]. Consequently (and apparently regardless of its non-native status in Shetland), a NatureScot licence is likely to be required for construction of the Proposed Development. Therefore, a mountain hare licence would be applied for from NatureScot if consent is granted. Based on NatureScot standing advice, a licence application would require a Mountain Hare Protection Plan (MHPP) to be supplied alongside it. However, there appears to be a 'clash' between policy, legislation and best practice guidance pertaining to actions on non-native species such as mountain hare in a Shetland context.

6.4.42 There is government policy and advice around non-native species e.g. the GB NNSS[27] and the Scottish Government's Code of Practice Non-native species[49], to help coordinate action and to disseminate information to prevent the spread on non-native species. None of the non-native species' guidance seeks to encourage or enhance the presence of non-native species in the UK. There is active encouragement for the prevention of the spread of non-native species. However, the NatureScot standing guidance for e.g. mountain hares, does not cover or provide guidance where mountain hares are non-native, such as in Shetland.

6.4.43 According to the GB NNSS[27] the Wildlife and Countryside Act states "Section 14(1) of the Act makes it illegal to release, allow to escape from captivity, or otherwise cause an animal to be at a place outwith its native range."

6.4.44 There appears to be a need to apply for a licence when development might impact on legally protected mountain hares, even in Shetland, due to their legally protected species status. However, the merits or otherwise of undertaking compensation or enhancement measures for a non-native species that might be impacted by a development is not clear. This potentially appears at odds with the Wildlife and Countryside Act on non-native species in Scotland and the Non-native species: code of practice[49] where encouraging or enhancing a non-native species such as mountain hare (which could be required by a licensing condition, as it is elsewhere in Scotland) in Shetland could considered to be illegal, and at the very least undesirable. Clarity from NS is sought on this specific issue.

6.4.45 Given this context, no compensation and enhancement measures have been suggested specifically for the loss of or damage to mountain hare habitat in the Study Area as they are a non-native species and such actions could be against the law. Indeed, it is considered possible that removal of mountain hare in Shetland may be considered beneficial in the non-native species context. The merits or otherwise of implementing a species protection plan

[48] NatureScot. (2026). Planning and development: standing advice and guidance documents; Available from: https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/planning-and-development-standing-advice-and-guidance-documents. [Accessed 19/03/2026]

[49] Scottish Government (2012). Code of Practice on Non-Native Species. Available at: Code of Practice on Non-Native Species - Made by The Scottish Ministers Under Section 14C of The Wildlife and Countryside Act 1981 [Accessed 19/03/2026]

for mountain hare, a non-native species that does not belong in Shetland, would be discussed and agreed with NatureScot before any works take place.

Importance of Bog Habitats

6.4.46 When evaluating the ecological importance of the bog habitat in the Study Area, there are a multitude of aspects to consider including the habitat quality and condition, Annex 1 and SBL criteria, the Carbon and Peatland Map and NatureScot guidance (2023/2026). The evaluation of blanket bog importance is provided in **Table 6.10**.

6.4.47 The Carbon and Peatland Map (2016)[25] predicts that the majority of the Study Area is likely to be Class 1 peatlands. Class 1 is described as "*Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas likely to be of high conservation value*".

6.4.48 The Carbon and Peatland Map is a high-level planning tool which predicts the presence of peatlands and peatland habitats. Its purpose is to be helpful in the initial site selection process undertaken by developers, but the map should not be used in development management decision-making[21]. It demonstrates that broadly the peatlands within the Study Area are predicted to form part of Scotland's nationally important resource of blanket bog (i.e. Class 1).

6.4.49 All bog habitats, whatever the condition, are on the SBL and are listed by European legislation, under Annex 1 of the Habitats Directive (Directive on the Conservation of Natural Habitats and Wild Fauna and Flora EC/92/43). Active, peat-forming, blanket bog is also listed as an Annex 1 priority habitat. 'Active' blanket bog is defined as "*supporting a significant area of vegetation that is normally peat-forming*"[50].

6.4.50 NatureScot[21] provide some guidance on the 'priority of peatlands'. They give a series of NVC communities, which may, under some circumstances, be considered to be priority, e.g. M17, M18 and M19. In their guidance, NatureScot recognises that peatland condition should be considered, and that site-specific surveys are required.

6.4.51 Bog pools are listed as an Annex 1 habitat and are included as part of the SBL habitat description for blanket bog. NatureScot consider that bog pools could be priority peatland habitats and should be avoided, but notes that "*these communities especially M3 can be associated with erosion features, if this is the case avoidance is often not essential*"[21].

6.4.52 Detailed consideration of the blanket bog habitats are provided in Technical Appendixes 6.2: Habitat Survey Report (EIAR Volume 4) and Technical Appendix 6.3: Vegetation Assessment Report (EIAR Volume 4). Consideration of likely peat activity and SSSI selection criteria were undertaken. These considerations are not repeated here for brevity, but Table 6.10 provides a summary, and an importance evaluation based on a variety of factors, and also those listed in CIEEM EcIA guidance.

6.4.53 There is an estimated 2,224,104 ha (22,241 km^2) of blanket bog in the UK[50], 1,759,000 ha (17,590 km^2) in Scotland[50] and an estimated 55,700 ha (557 km^2) in Shetland[51]. The Study Area had an estimated 735 ha of bog habitat (**Technical Appendix 6.2 Habitat Survey Report (EIAR Volume 4)**). Although, some areas of the blanket bog may be approaching Annex 1 priority habitat definitions, there is much less than 1 % of the national total (c. 0.04 %), and c. 1% of the regional total.

[50] JNCC. (2015). UK Terrestrial and Freshwater Habitat Descriptions. Available from: https://jncc.defra.gov.uk/resources/b0b5e833-7300-4234-8ae5-bdbf326e854c. [Accessed 19/03/2026]

6.4.54 Peatlands are generally considered to be irreplaceable habitats as they cannot be replaced, like for like, within a reasonable time period if they are destroyed[19]. However, the condition of these habitats can be improved from a degraded state through habitat restoration and there is a great deal of evidence for effective peatland restoration including at and around wind farm sites, including across Shetland.

6.4.55 In summary, bog habitat within the Study Area forms part of the 'Nationally Important Carbon and Peatland resource' as defined by the Carbon and Peatland Map. However, the quality and condition of the bog habitat within the Study Area was very variable, with the most important blanket bog habitat being that which was in Near-Natural condition which were considered potentially capable of actively forming peat and Annex 1 priority habitat descriptions.

Table 6.10: Importance evaluation of bog habitat									
PCA Category	**NVC**	**Likely Peat Forming Activity**	**SBL**	**Annex 1 (* Priority)**	**Likely Meeting SSSI Selection Criteria?**	**Carbon and Peatland Class**	**Importance (Ranked)**	**Importance**	**Priority Peatland (NatureScot, 2023)**
Near Natural	e.g. M17b:M2a	Likely active in some circumstance.	✓	✓*	Yes	e.g. Class 1	Highest	Part of the nationally important resource.	Likely
Modified	e.g. M17b, M19	Likely inactive.	✓	✓	No	e.g. Class 2	Medium	Likely to fall within Class 2 and so part of the nationally important resource.	No
Drained	e.g. M17b, M19 within a 30 m buffer of erosion features/drainage ditches/peat cuttings	Likely inactive.	✓	✓	No	e.g. Class 2 or 3	Medium - Lower	Likely to fall within Class 2 or Class 3 and so potentially part of the nationally important resource.	No
Actively Eroding	e.g. Dry modified bog, M3	Inactive. Carbon source.	✓	✓	No	e.g. Class 2 or 3	Lowest	High restoration potential. Likely to fall within Class 2 or Class 3 and so potentially part of the nationally important resource.	No

6.5 Mitigation

6.5.1 Embedded (primary) mitigation is an inherent part of the project design and comprises measures that have influenced the location and design of the Proposed Development. Embedded mitigation would be secured through the description of the Proposed Development as part of planning consent and is described in the design evolution narrative (refer to **Chapter 3: Design Evolution (EIAR Volume 2)**). Standard (tertiary) mitigation comprises measures that are mandated by legislative requirements or standard best practices and would be required regardless of the outcomes of any EIA.

6.5.2 As the embedded and standard mitigation would form part of the Proposed Development, there would be no consented scenario where the mitigation measures would not be implemented. As such, and in accordance with best practice e.g. NPF4, the assessment of likely significant effects assumes that these mitigation measures are implemented.

Embedded mitigation

6.5.3 In line with NPF4 and best practice guidance[1], the Proposed Development was designed to avoid or minimise sensitive and legally protected ecological receptors, as far as possible within the parameters of the project.

Avoidance

6.5.4 Avoidance of potentially important ecological receptors has been achieved in several areas by the proposed design. This is transparently demonstrated in **Chapter 3: Design Evolution and Alternatives (EIAR Volume 2)**. For example:

- The designated sites have been largely avoided by the design (see **Chapter 3: Design Evolution and Alternatives (EIAR Volume 2)**). Based on the conceptual design there is potential need for a small section of earthworks (fill) within the Yell Sound Coast SAC boundary. This encroaches approximately 4 m into the SAC designation and occupies an area of <0.001% of the total SAC designation. In correspondence with NatureScot (March 2026) (see **Technical Appendix 1.1: Consultation Register (EIAR Volume 4)**) it was stated that "*The applicant is open to engaging further with NatureScot, at an appropriate stage following submission of the application, to discuss how a planning condition can be used to secure necessary mitigation measures to ensure that adverse effects on the integrity of the SAC are avoided, with no reasonable scientific doubt. We can confirm that this approach is acceptable*." NatureScot have confirmed that they are content with this approach. Therefore, the assessment of impacts/effects has been undertaken on the assumption that appropriate mitigation at the detailed design stage would ensure no direct/indirect impacts on the integrity of the SAC.
- Removal of two turbines and associated infrastructure from the design, reducing direct impacts of land-take and any associated indirect impacts.
- Careful consideration of sensitive habitats was undertaken throughout the design process. It was recommended in **Technical Appendix 6.2: Habitat Survey Report (EIAR Volume 4)** that all blanket bog habitat in Near-Natural condition should be completely avoided by the design. It was also recommended that blanket bog in an Actively Eroding condition should be avoided wherever possible to allow for restoration and impacts should be minimised on all blanket bog. This has been achieved through careful design, for example:
  - The Scoping iterations of the design had turbine infrastructure on/near Near-Natural blanket bog and the design chill layout had track positioned between sections of Near-Natural blanket bog. Following advice (see **Technical Appendix**

6.3: Vegetation Assessment Report (EIAR Volume 4)) the design was altered specifically to avoid Near-Natural blanket bog.

- The track around Turbine 1 and Turbine 8 have been substantially rerouted to avoid Near-Natural blanket bog (**Technical Appendix 6.3: Vegetation Assessment Report (EIAR Volume 4)**).
- Track and turbines around Turbine 5, Turbine 6 and Turbine 7 have been rerouted and repositioned to avoid Near-Natural blanket bog and Actively Eroding blanket bog.
- The entrance track has been rerouted to avoid Actively Eroding bog.
- Turbine 2 and the nearby compound area have been repositioned to avoid areas with bog pools.

Minimisation

6.5.5 Where avoidance of potentially sensitive ecological receptors, such as blanket bog, was not always possible it is clearly explained in **Chapter 3: Design Evolution and Alternatives (EIAR Volume 2)**, potential impacts would be minimised in the following ways:

- To minimise impacts on areas with deep peat and blanket bog habitat, floating tracks would be used wherever possible (subject to post consent detailed site investigation and detailed design). See **Chapter 2: Description of Proposed Development (EIAR Volume 2)** for further details.
- To minimise impacts, the use of the 'Just in Time' technique, would be considered in greater detail at the detailed design stage. Prime candidates for the use of Just in Time would be Turbine 2 and Turbine 4. Further details are provided in **Chapter 3: Design Evolution and Alternatives (EIAR Volume 2)**.
- Embedded mitigation includes micro-siting (100 m) which would be used to relocate infrastructure to further avoid any sensitive habitats, such as any bog pools. This would necessarily be carried out on the ground under supervision by the ECoW and with agreement of SIC. The habitat surveys provided guidance in many areas of how to avoid the most sensitive, blanket bog areas through design (which has already been done) and micro-siting (yet to be done). Further, embedded mitigation includes minimising impacts on areas identified as having Near-Natural features retained. In this instance, there was a higher degree of pools, but the bog was in a clearly Modified condition. In this area, the infrastructure would be micro-sited away from groups of pools, wherever possible, and all the required drains, cabling, and impacts from machinery etc. would be directed away from these features (and not towards them).

Standard mitigation

6.5.6 In line with NPF4 and best practice guidance[1], best practice measures would be undertaken to further avoid or minimise potential impacts on ecological receptors. The standard mitigation measures of relevance to ecology include:

Avoidance

- All works would be overseen by an experienced peatland Ecological Clerk of Works (ECoW) to help effectively implement standard mitigation measures.
- Pre-construction surveys would be undertaken for otters and possibly mountain hare. A watching brief would also be kept for these species. Construction workers would be given toolbox talks to provide information with regard to these species.

- Species Protection Plans (SPP) would be developed for otters and mountain hare (as required).
- Work exclusion zones to be identified wherever necessary.
- Construction work near the coastline (Turbine 3 and Turbine 4) would not be undertaken during the peak otter breeding period (e.g. June) to avoid disturbance of breeding otter.
- Exposed pipe systems would be capped when contractors are off site, and exposed trenches or holes would be covered or exit ramps provided to prevent protected mammals (otter and mountain hare) becoming trapped.
- Any security lighting would be directed away from any potentially sensitive mammal areas (e.g. watercourses).
- Chemicals would be stored in a safe and secure place away from watercourses following best practice guidance.
- Watercourses have a minimal stand-off distance of 50 m.
- Water quality, macro-invertebrate and fish baseline surveys would be undertaken prior to construction commencing.

Minimisation

- Mammal friendly designs (with appropriate mammal ledges to provide routes for mammals to pass through) would be used for large culverts and bridges to provide safe otter access and crossing points.
- If fencing is used, mammal friendly fencing would be used to avoid blocking potential routes (they would have regular small gaps for mammals to move through).
- Low vehicle speed limits (e.g. 15 mph) would be imposed during operation and construction to reduce the likelihood of injury or mortality of otters and mountain hare.
- Otter crossing road signs would be located at watercourse crossings to further help prevent vehicle traffic mortality during operation.
- Pre-construction otter surveys would search for any otter holts, including natal holts, or resting places prior to construction as part of an Otter Protection Plan (OPP) (mitigation reference EC02 and EC03). NatureScot guidance recommends the following: "*mark work exclusion zones around any holts and shelters. If otters are breeding, the zone should be at least 200 m. However, it could be reduced to 100 m depending on the nature of the works, topography and natural screening. This will require judgement from an experienced ecologist. For holts and shelters where otters are not breeding, the exclusion zone should be 30 m. Where exclusion zones of the required size are not possible, works will require a licence from NatureScot before they can proceed*."

Restore

6.5.7 A Peat Management Plan (PMP) would be fully developed (**Chapter 8: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)**).

6.5.8 The topsoil/acrotelm would be preserved where possible, from habitat that is lost. It would be laid over the top of the areas to be reinstated (e.g. areas used temporarily for construction) or used in habitat restoration (for details see **Chapter 8: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)**).

6.5.9 A summary of the standard mitigation considered for the Ecology assessment is set out in **Table 6.11**.

Table 6.11: Summary of Standard Mitigation			
Reference	**Phase***	**Description**	**Purpose of Mitigation**
EC01	Detailed design	A condition to ensure appropriate mitigation at the detailed design stage which would result in no direct/indirect impacts on the integrity of the SAC	To ensure no direct/indirect impacts on the integrity of the Yell Sound Coast SAC.
EC02	C	Pre-construction surveys would be undertaken for otters and mountain hare (as required). A watching brief would also be kept for these species. Construction workers would be given toolbox talks to provide information with regard to these species.	To avoid potential impacts on protected terrestrial mammals.
EC03	*C and O*	SPP would be developed for otters and mountain hare (as required). This would include identifying and implementing work exclusion zones wherever necessary and ensuring construction work near the coastline (Turbine 3 and Turbine 4) would not be undertaken during the peak otter breeding period (e.g. June) to avoid disturbance of breeding otter.	To ensure otter and mountain hare (as required) are protected and any legal requirements are followed.
EC04	*C*	Exposed pipe systems would be capped when contractors are off site, and exposed trenches or holes would be covered or exit ramps provided.	To prevent protected mammals (otter and mountain hare) becoming trapped.
EC05	*C*	An ECOW would be present during construction of the Proposed Development during construction work.	To implement mitigation measures, ensuring avoidance and minimisation of impacts on ecological features such as Near-Natural blanket bog, bog pools and protected terrestrial mammals.
EC06	*C and O*	Any security lighting would be directed away from any potentially sensitive mammal areas (e.g. watercourses).	To prevent disturbance to protected mammals.
EC07	*C*	Chemicals would be stored in a safe and secure place away from watercourses following best practice guidance.	To prevent potential pollution.
EC08	*C*	Pre-construction water quality, macro-invertebrate and fish baseline surveys would be undertaken prior to construction commencing to provide a pre-construction baseline.	To ensure effective monitoring and protection of the aquatic environment during construction.
EC09	*C and O*	Mammal friendly designs (with appropriate mammal ledges to provide routes for mammals to pass through) would be used for large culverts and bridges to provide safe otter access and crossing points.	To maintain habitat connectivity and safe movement routes for otters and other mammals.
EC10	*C and O*	If fencing is used it would be mammal friendly fencing to avoid blocking potential routes (they	To avoid obstruction of mammal movement and prevent habitat fragmentation.

Table 6.11: Summary of Standard Mitigation			
Reference	**Phase***	**Description**	**Purpose of Mitigation**
		would have regular small gaps for mammals to move through).	
EC11	*C and O*	Low vehicle speed limits (e.g. 15 mph) would be imposed during operation and construction to reduce the likelihood of injury or mortality of otters and mountain hare.	To reduce the risk of vehicle collision, injury or morality to otters and mountain hare.
EC12	*C and O*	Otter crossing road signs would be located at watercourse crossings to further help prevent vehicle traffic mortality during operation.	To reduce the risk of vehicle related mortality of otters.
EC13	*C*	A PMP would be fully developed. The topsoil/acrotelm would be preserved where possible, from habitat that is lost. It would be laid over the top of the areas to be reinstated or used in habitat restoration	To minimise habitat loss and support effective habitat reinstatement and restoration.

*C=construction, O=operation and maintenance.

6.6 Assessment of Likely Effects

6.6.1 The main construction and operational elements of the Proposed Development which have the potential to impact on ecological receptors are assessed within this section. For further details of the Proposed Development refer to **Chapter 2: Description of Proposed Development (EIAR Chapter 2)**.

Potential Construction Effects

6.6.2 A summary of the potential construction impacts on ecology is provided in **Table 6.12**. Potential construction impacts in this table does not imply that they would occur, or that any resultant effects would be significant.

Table 6.12: Summary of potential construction impacts on ecological receptors	
Term	**Potential Construction Impacts**
Mobile plant operations and traffic	Direct habitat loss. Temporary noise. Vibration, movement, vegetation disturbance and habitat fragmentation. Pollution and sediment release into watercourses. Mortality.
Tracks and watercourse crossings including cut/fill works	Direct habitat loss. Temporary noise. Vibration, movement, vegetation disturbance and habitat fragmentation. Pollution and sediment release into watercourses. Changes in hydrology and chemistry leading to vegetation changes and potential blocking of fish passage. Mortality.
Cable laying including cut/fill works	Direct habitat loss. Temporary noise. Vibration, movement, vegetation disturbance and habitat fragmentation. Pollution and sediment release into watercourses. Introduction of drainage lines leading to habitat change.
Turbine hardstanding's, substation and BESS, construction compounds and laydown areas including cut/fill works	Direct habitat loss. Temporary habitat loss, disturbance and fragmentation caused by overlaying vegetation. Pollution and sediment release into watercourses. Mortality.

Potential Operational Effects

6.6.3 A summary of the potential operation impacts on ecology is provided in **Table 6.13**. Potential operational impacts in this table does not imply that they would occur, or that any resultant effects would be significant.

Table 6.13: Summary of potential operation impacts on ecological receptors

Term	Potential Operation Impacts
Turbines in operation	Noise and movement resulting in potential disturbance.
Hardstandings	Smaller residual loss of habitat from construction throughout operation. Impacts on hydrology resulting in changes to vegetation.
Tracks	Loss of habitat from construction throughout operation, severance and fragmentation of both terrestrial and aquatic habitats. Impacts on hydrology and chemistry along track edges resulting in changes to vegetation. Sediment release into watercourses. Mortality from service vehicles.
Recreation i.e. recreational use of tracks	Increased disturbance and associated effects through noise and trampling etc. e.g. motorbikes, walking, dogs and litter.
Substation and BESS	Loss of habitat throughout operation.
Cleared areas around turbines	Loss of habitat throughout operation.

Effects on Bog Habitats

6.6.4 This section describes the predicted effects on bog habitats that could arise, from the construction and operation of the Proposed Development. Embedded mitigation, including avoidance and minimisation to reduce potential effects are described.

6.6.5 The construction and operation of the Proposed Development has the potential to adversely affect bog habitats directly or indirectly in a number of ways, for example:

- direct habitats loss, with a temporary habitat loss at construction and a smaller, but permanent habitat loss during operation;
- indirect impacts through changes in hydrology;
- severance or fragmentation; and
- pollution.

6.6.6 Details of baseline habitat surveys are provided in Technical Appendix 6.2: Habitat Survey Report (EIAR Volume 4), Technical Appendix 6.3: Vegetation Assessment Report (EIAR Volume 4) and Figure 6.3 Phase 1 Habitats and NVC (EIAR Volume 3a).

6.6.7 Examples of embedded mitigation to avoid and minimise impacts on semi-natural habitats were described in **Section 6.5** and included:

- Moving turbines and associated infrastructure to avoid Near-Natural blanket bog.
- Repositioning the track so it does not go between two sections of Near-Natural blanket bog.
- Avoidance of all blanket bog that was actively eroding, which had a high degree or restoration potential.
- Avoidance and minimising impacts to habitats associated with watercourses.
- Embedded mitigation includes micro-siting (100 m) which would be used to relocate infrastructure to further avoid any sensitive habitats, such as any bog pools. This would necessarily be carried out on the ground under supervision by the ECoW and with agreement of SIC.

6.6.8 In addition, the construction and operation of the Proposed Development has the potential to positively affect bog habitat within the Study Area directly or indirectly in a number of ways through implementation of the OBEHMP (**Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**), e.g.

- Peatland restoration;
- Reduce grazing pressure;
- Creating and strengthening nature networks;
- Creation of artificial otter holts;
- Clearing up waste along the coast; and
- Targeted ornithological measures (see **Chapter 7: Ornithology (EIAR Volume 2)** for further details).

6.6.9 This is considered further in the additional mitigation section and enhancement section (**Section 6.7** – **Section 6.9**).

Direct impacts on habitats

6.6.10 Direct impacts of land-take and potential indirect impact on semi-natural habitats have been considered by overlaying the Proposed Development layout on to the Phase 1 Habitat and NVC maps (**Figure 6.3: Phase 1 Habitats and National Vegetation Classification (NVC) (EIAR Volume 3a)**) and the PCA map (**Figure 6.4: Peatland Condition Assessment (PCA) (EIAR Volume 3a)**).

6.6.11 Infrastructure components that are 'permanent' for the lifetime of the Proposed Development are described in **Table 6.14** as the 'operational loss'. Parameters that are temporary and relate to the construction phase of the Proposed Development are described in **Table 6.14** as 'construction loss'.

Table 6.14: Summary of Predicted Operation, Construction and Indirect Habitat Loss/Impact Parameters			
Habitat Loss	**Infrastructure Components**	**Rationale**	**Area**
Direct Habitat Loss – Operational loss - all permanent infrastructure.	▪ A 5 m wide track on straight sections with 0.5 m shoulders on either side – so 6 m wide in total. On bends this would increase to a maximum of 7.5 m wide with 0.5 m shoulders on either side – so 8.5 m wide in total. For land-take the track and shoulders were assumed to be 7 m wide for entire length; ▪ eight permanent turbine foundations and permanent hard standings; ▪ a permanent substation location; ▪ a permanent BESS location.	The shapefiles were provided with track, hard standings, BESS and substation marked as permanent. For the operational loss no additional buffer was added. All elements were merged to avoid overlap.	84,516 m^2 (8.5 ha, or 0.85 km^2)
Direct Habitat Loss – Construction loss - all permanent and temporary infrastructure.	▪ operational loss (as described above); ▪ a temporary construction compound; ▪ a 2 m buffer around all the infrastructure to account for cabling etc, and for potential construction impacts such as vehicle damage. Cabling would be laid in trenches adjacent to the access tracks, in the verge or close to the track. The trenches would be 1-2 m wide.; and ▪ cut and fill around all infrastructure.	Email and phone conversations between Ramboll, and Alba Ecology Ltd. in January and February 2026 provided the rationale for suitable buffers for the permanent infrastructure. For a predicted habitat loss due to the construction of the wind farm the following was calculated: All the infrastructure was given a 2 m buffer around it to take into account of aspects such as drains and cabling and vehicle movement. Note the 2 m buffer was placed on both sides of all infrastructure, whereas in reality cabling would only actually be on one side. This 2 m area would be reinstated post construction. The cut and fill shapefile was then added as it was assumed any drains and cabling would go into cut and fill areas (therefore it was not additive), i.e. there was a minimum of 2 m around all infrastructure, but where cut and fill went beyond this, no additional buffer was provided. Note the cut and fill would be reinstated post construction. This was merged with the operational loss.	257,647 m^2 (25.7 ha, or 0.257 km^2)
Indirect Habitat Impact – construction loss plus 10 m buffer.	10 m buffer around the construction loss.	A 10 m buffer was added to the construction loss (as described above) to take into account any indirect impacts on habitat through e.g. changes in hydrology. This 10 m buffer was placed on both sides of all infrastructure, but in reality any indirect impacts would be dependent on aspects such as slope, permeability and barriers, and so is an	169,012 m^2 (16.9 ha, or 0.169 km^2)

Table 6.14: Summary of Predicted Operation, Construction and Indirect Habitat Loss/Impact Parameters			
Habitat Loss	**Infrastructure Components**	**Rationale**	**Area**
		overestimation. The construction loss is not included in this metric.	

6.6.12 Note, merging was used for all infrastructure components to provide the relevant land-take area metrics. Therefore, the final metrics may differ from adding the area metrics from individual components due to issues such as overlap between components. Any overlaps have been merged in QGIS so they are not double counted. The totals shown are the merged totals and give the total land area that is predicted to be lost/impacted.

6.6.13 The operational and construction layouts were 'clipped' from the habitat data polygons in QGIS. It should also be noted that the habitat boundaries are indicative only as there is often a gradation between different habitat types and rarely a distinct boundary.

6.6.14 There are clearly several limitations/assumptions associated with the land-take calculations (e.g. assumptions in buffers and indicative habitat boundaries). Assumptions made are considered to be representative and caution has been applied in making these assumptions. The land-take calculations should be considered as an estimation of predicted loss, rather than an absolute measure.

6.6.15 The predicted habitat loss as a consequence of land-take caused during construction and operation of the Proposed Development is presented in **Table 6.15**. Note that the operational loss is a subset of construction loss and is not additional.

Table 6.15: Predicted Direct and Indirect Habitat Loss from the Proposed Development at Operation and Construction from Phase 1 Habitats and NVC communities.

Note: Operational loss is a subset of construction loss. Operational loss is what remains following construction, reinstatement and restoration measures.

Phase 1 Habitat	NVC Community	Operation Loss (m^2) (subset of construction)	Construction Loss (m^2)	Indirect Loss (m^2)
Acid flush	M6c	132.8	538.2	51.2
Acid grassland	U6	821.1	2,130.7	2,277.5
	U6:U5	0.0	108.2	238.4
	Acid grassland total	**821.1**	**2,238.9**	**2,515.9**
Blanket bog	M17b	66,267.9	178,937.7	118,796.7
	M17b:M2	1,982.8	7,094.6	5,690.9
	M19a	2,664.5	11,922.0	4,937.3
	Blanket bog total	**70,915.3**	**197,954.3**	**129,425**
Dry heath	H10a	5,451.1	16,475.4	11,153.9
Dry heath/acid grassland	H10a:U6	343.0	436.6	0
	H10a:U6:U5	0.0	0.0	11316.2
	Dry heath/acid grassland total	**343.0**	**436.6**	957
Dry modified bog	DMB:H10a	0.0	13,673.9	6,553.7
	DMB:M15c:M17b:M2:M3	0.0	3,886.3	2,981.8
	DMB:M3:BP:M17b	425.9	2,449.7	2,269.5
	M15c:DMB:U6	0.3	255.4	814.2
	Dry modified bog total	**426.2**	**20,265.3**	**12,619.2**
Marshy grassland	MG10a:U6:H10a	232.6	838.6	803.4
Road	Road	244.0	491.5	1,196
Wet heath	M15c:M17b:U6:M2	0.0	3,303.0	1,913.1

Table 6.15: Predicted Direct and Indirect Habitat Loss from the Proposed Development at Operation and Construction from Phase 1 Habitats and NVC communities.

Note: Operational loss is a subset of construction loss. Operational loss is what remains following construction, reinstatement and restoration measures.

Phase 1 Habitat	NVC Community	Operation Loss (m^2) (subset of construction)	Construction Loss (m^2)	Indirect Loss (m^2)
Wet modified bog	M17b	0.0	136.8	780.4
	M17b:M19:H10:U6	5,334.4	14,060.3	6,126.8
	M17b:MG10a	259.6	368.0	474.8
	U6 (WMB)	355.8	540.7	1,004.8
	Wet modified bog total	**5,949.8**	**15,105.8**	**8,386.8**
Total		**84,515.8**	**257,647.6**	**16,9021.4**

6.6.16 **Table 6.15** demonstrates that the majority of the habitat predicted lost as a result of the Proposed Development Footprint would be from the blanket bog habitat with c. with 19.8 ha predicted to be lost through direct construction and a total of 7.1 ha would remain lost as a result of permanent operational infrastructure (**Table 6.15**). Smaller amounts are predicted to be lost from other habitat types for example dry modified bog (c. 2.0 ha at construction) and wet modified bog (c. 1.5 ha at construction). Potential indirect impacts are considered separately.

6.6.17 All the bog habitat in the Study Area had experienced some level of modification through grazing and through global impacts such as nitrogen deposition and climate change. There were also clear impacts from drainage, grazing from sheep, drains and peat cuttings. Despite modifying and draining influences, Near-Natural features present in some areas. **Table 6.16** gives the habitat loss metrics from the PCA.

Table 6.16: Predicted Direct and Indirect Habitat Loss from the Proposed Development at Operation and Construction from PCA categories.

Note: Operational loss is a subset of construction loss. Operational loss is what remains following construction, reinstatement and restoration measures.

	Operation Loss (m^2) (subset of construction)	Construction Loss (m^2)	Indirect Loss (m^2)
Modified (with some Near-Natural features retained)	1,982.8	7,094.6	5,690.90
Modified	74,526.7	222,657.1	140,397.10
Actively Eroding	425.9	6,336.0	5,251.30
N/A	7,580.4	21,559.9	17,682.20
Total	84,515.8	257,647.6	169,021.40

6.6.18 Standard mitigation includes, where possible, preserving the topsoil/acrotelm from the habitat that is lost and laying it over the top of the areas to be reinstated (mitigation reference: EC13). This would provide a local provenance seed source as well as viable root matter for the areas being reinstated. Therefore, the reinstated vegetation is likely to be similar, if not the same, habitat type as previously present.

Assessment of Direct Habitat Loss

6.6.19 **Table 6.17** provides the habitat loss (at construction, which is largest) as a proportion of the habitats in Study Area, at the regional scale (Shetland) and at the national (Scottish) scale for bog habitat. The regional scale metrics are taken from Shetland Amenity Trust[51]. The Scottish metrics are from those reported by the JNCC [52].

[51] Shetland Amenity Trust. (2025). Peatlands and Peatland Restoration in Shetland. Available from: https://www.shetlandamenity.org/peatlands [Accessed 20/03/2026]

[52] JNCC. (2015). UK Terrestrial and Freshwater Habitat Descriptions. Available from: https://jncc.gov.uk/resources/b0b5e833-7300-4234-8ae5-bdbf326e854c [Accessed 19/03/2026]

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Table 6.17: Bog habitat loss from construction as a proportion of the bog habitat in Study Area, at the regional scale and at the national (Scottish) Scale										
Phase 1 Habitat	**Loss at Construction**	**Study Area**			**Regional (Shetland)**			**National**		
		Size of resource	Proportional Loss	Magnitude	Size of resource	Proportional Loss	Magnitude	Size of resource	Proportional Loss	Magnitude
Blanket bog	19.8 ha	560.6 ha	3.5 %	Minor	55,700 ha	0.035 %	Negligible	1,759,000 ha	0.001 %	Negligible
Dry modified bog	2.0 ha	157.1 ha	1.3 %	Minor	55,700 ha	0.0036%	Negligible	1,759,000 ha	0.0001 %	Negligible
Wet modified bog	1.5 ha	17.3 ha	8.7 %	Minor	55,700 ha	0.0027 %	Negligible	1,759,000 ha	0.00008 %	Negligible
Bog habitats (blanket bog, dry modified bog and wet modified bog combined)	23.3 ha	735.0 ha	3.2 %	Minor	55,700 ha	0.042 %	Negligible	1,759,000 ha	0.001 %	Negligible

6.6.20 The assessment shown in **Table 6.17** is presented for the predicted construction land-take. The remaining operational land-take is a subset of constructional loss and so is evidently smaller. The construction loss includes indicative earthworks areas and a 2 m buffer around all infrastructure. This is precautionary. The buffer is unlikely to extend this far for some/most of the infrastructure, as e.g. cabling would only be on one side not both, but exactly how much and where is unclear at this stage. Buffers, and earthworks would avoid any bog habitats considered particularly sensitive by the ECoW, such as bog pools.

6.6.21 The bog habitat was assessed as being part of the Nationally Important resource noting that much had restoration potential. The magnitude of impact that would arise as a consequence of construction land-take was assessed as Minor at the Study Area scale and Negligible at the regional and national scales. This habitat type is largely modified through extensive long-term grazing, drainage and peat cuttings.

6.6.22 Given the embedded and standard mitigation, **No Likely Significant Effects** are predicted for the bog habitat i.e. there would be no detectable change. Therefore, if the Proposed Development was built, the available information indicates that conservation status of bog habitat would not likely be affected because:

- The bog habitat would be maintained on a long-term basis nationally in Scotland and in the Shetland region.
- The natural range of bog habitat nationally in Scotland and in the Shetland region would not be reduced by the Proposed Development, nor would it become likely to be reduced in the foreseeable future.
- There would be (and would continue to be) a sufficiently large area of bog habitat nationally in Scotland and in the Shetland region to maintain the populations of species that rely on bog as a habitat should the Proposed Development be built.

Indirect impacts on habitats through changes in hydrology

6.6.23 Potential indirect impacts on habitats could arise from changes in drainage which can adversely impact habitats by altering the amount of water a habitat receives or retains. These potential hydrological impacts are considered in **Chapter 8: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)** which takes into account standard mitigation, in particular implementation of a suitable Construction Environmental Management Plan (CEMP), which would include measures for minimising disruption to groundwater flow, suitable surface water drainage and Sustainable Drainage Systems (SuDS).

6.6.24 A potential indirect loss buffer of 10 m has been included in the habitat loss calculations to ensure other construction impacts such as machinery movement as well as potential indirect impacts such as changes to hydrology were taken into consideration. For the purposes of transparency, the details for the predicted land-take habitat loss and indirect impact parameters are provided in **Table 6.14**, with an explanation of the buffers used for each element. The construction loss parameters include operational loss parameters (i.e. they are not additive).

6.6.25 **Chapter 8: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)** reports that any potential dewatering activities, most notably considered within areas of proposed turbine hard standings, would be carried out in line with The Environmental Authorisations (Scotland) Regulations (EASR)[53] and managed through the CEMP and Pollution Prevention Plan (PPP). The contractor responsible for dewatering activities in these areas would be

[53] Environmental Authorisation (Scotland) Regulations 2018

required to ensure water quality and sediment quality is managed appropriately. Surface water drainage for the proposed development would be managed for a SuDs strategy with allowance for climate change, to be carried out at the detailed design stage.

6.6.26 **Chapter 8: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)** goes on to report that potential likely effects of dewatering during the construction phase would be considered temporary and would not be considered likely through the operational phase of the Proposed Development. Given that the underlying hydrogeological conditions and low permeability peat indicates that effects would be localised and that there would be minimal dewatering. It concludes that effects would not be significant from dewatering activities.

6.6.27 In relation to bog habitat, NatureScot guidance advocates a 30 m drainage buffer around all infrastructure[21] and comment that indirect impacts would be treated in the same manner as direct impacts. However, there are several important site-specific considerations to take account of:

- Some areas of the bog habitat were already hydrologically compromised through existing erosion features, drainage ditches and historic peat cuttings. It is considered highly unlikely that potential indirect impacts of changes in hydrology to bog would occur in most areas of the bog as it is already hydrologically compromised, particularly beyond the earthworks extent and 2 m buffer[54].
- Some of the Actively Eroding areas, drainage ditches and peat cuttings identified for peatland restoration in the OBEHMP are in close/very close vicinity to the Proposed Development. It is counter intuitive to consider there to be an indirect negative impact from a proposed development when the areas are identified for restoration.
- The only areas of bog habitat considered likely to be meeting NatureScot 'priority peatland habitat' types (where peatland activity is possible) are in the areas identified as being Near-Natural and these have all been deliberately avoided.
- CIEEM guidance specifies consideration of likely effects. It is considered, in this site-specific situation, that indirect changes to bog habitat from hydrological impacts in the already hydrologically compromised bog habitat would be highly unlikely.

6.6.28 Therefore, it is considered that a 30 m buffer is likely far too wide. This is supported by hydrogeological analysis using standard equations[54] for predicting the cone of drawdown associated with excavations. Given the low permeability of the catotelmic peat it is likely that there would be very limited dewatering beyond the extent of the excavations. Any dewatering is therefore limited to the more permeable acrotelm which is less than 0.2 m thick and standard hydrogeological equations predict the likely dewatering extent to actually be less than 10 m. Therefore, a 10 m buffer was used to represent indirect impacts (see **Table 6.14** and **Table 6.15**).

6.6.29 **Table 6.18** provides the potential total direct and indirect habitat loss of bog habitat as a proportion of the habitat in Study Area, at the regional scale and at the national (Scottish) scale (as per the direct impacts).

[54] Marinelli, F., and W. L. Niccoli. (2000). Simple analytical equations for estimating ground water inflow to a mine pit. Ground Water 38, no. 2: 311-314.

Table 6.18: Construction loss plus indirect bog habitat loss as a proportion of the bog habitat in Study Area, at the regional scale and at the national (Scottish) Scale

Phase 1 Habitat	**Loss at Construction plus indirect loss**	**Study Area**			**Regional (Shetland)**			**National**		
		Size of resource	Proportional Loss	Magnitude	Size of resource	Proportional Loss	Magnitude	Size of resource	Proportional Loss	Magnitude
Bog habitats (blanket bog, dry modified bog and wet modified bog combined)	38.3 ha	735.0 ha	5.2 %	Minor	55,700 ha	0.069 %	Negligible	1,759,000 ha	0.002 %	Negligible

6.6.30 The assessment shown in **Table 6.18** is presented for the construction loss, plus the potential indirect impacts. This is an additional potential 10 m indirect buffer placed around the construction loss and includes the construction loss (see **Table 6.14**). It assumes the whole area in the 10 m buffer is completely lost. This is considered precautionary. For example, hydrological pathways have not been included. If there are barriers, or upgradient slopes then indirect impacts are unlikely to occur. In addition, it is more likely that if there are any impacts then much of the habitat predicted to be impacted indirectly would have a very small/minimal ecological change (and not be complete loss), particularly as the bog habitat is already in a Modified condition and hydrologically compromised. The indirect buffer around the infrastructure is unlikely to extend far for some/most of the infrastructure, but exactly how much and where is unclear.

6.6.31 Much of the bog habitat was assessed as being part of the 'Nationally Important Carbon and Peatland resource' as defined by the Carbon and Peatland Map, and the magnitude of impact that would arise as a consequence of indirect impacts was assessed as Minor at the Study Area scale and Negligible at the regional and national scales (**Table 6.18**). The bog habitat predicted to be negatively impacted by the Proposed Development was already in a Modified condition due to grazing, drainage and peat cuttings.

6.6.32 Taking into account the embedded mitigation, including avoiding all the better quality Near-Natural blanket bog habitat, and standard mitigation for surface water drainage, the potential magnitude of indirect impacts on all bog habitat would likely be Minor to Negligible compared to the local resource, with no likely significant effects predicted i.e. there would be no detectable change in the local resource.

6.6.33 Therefore, no likely significant negative effects on bog habitat are predicted from any additional indirect impacts. If the Proposed Development was built, the available information indicates that conservation status of bog habitat would not likely be affected because:

- The bog habitat would be maintained on a long-term basis nationally in Scotland and the Shetland region.
- The natural range of bog habitat nationally in Scotland and the Shetland region would not be reduced by the Proposed Development, nor would it become likely to be reduced in the foreseeable future.
- There would be (and would continue to be) a sufficiently large area of bog habitat nationally in Scotland and the Shetland region to maintain the populations of species that rely on bog as a habitat should the Proposed Development be built.

Severance

6.6.34 Severance or fragmentation has the potential to adversely affect habitat connectivity for individuals, propagules or gene flow. Tracks have the potential to separate terrestrial habitats and impede movements of associated species. The average width of all new proposed tracks is 7 m. There is no evidence that any of the important ecological receptors associated with the Study Area habitats would find a 7 m track, and associated cuttings and embankments, a physical barrier, causing severance and preventing propagule movement or gene flow between habitat patches. The Proposed Development is set within a landscape of blanket bog, and dry modified bog. It is considered highly unlikely, that the Proposed Development would prevent or inhibit the movement of individuals, propagules or gene flow. The magnitude of change as a consequence of severance is assessed as Negligible. The impact caused by severance is considered to be unlikely, one-off, irreversible and long-term and **No Likely Significant Effects** are predicted.

Pollution

6.6.35 Potential indirect impacts on habitats could arise from pollution events. Pollution prevention measures are considered in **Chapter 8: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)** which takes into account standard mitigation, in particular implementation of a suitable CEMP and appropriate storage and management of fuels and chemicals.

6.6.36 Therefore, with the standard mitigation, the magnitude of change on habitats as a consequence of pollution is assessed as Negligible. With the standard mitigation, the indirect impact on habitats as a consequence of pollution is considered to be unlikely, intermittent, temporary and short-term (event) to medium term (recovery) and **No Likely Significant Effects** are predicted.

Summary

6.6.37 In summary, with the above standard mitigation measures implemented, **No Likely Significant Effects** are predicted for bog habitats in relation to the construction and operation of the Proposed Development (**Table 6.19**).

Table 6.19: Summary of Predicted Impacts on Bog Habitat

Parameter	Habitat Loss	Indirect Habitat Loss from Change in Hydrology	Severance	Pollution
Positive/ negative/ neutral	Negative	Negative	Negative	Negative
Extent	Development Footprint	10 m buffer around Development Footprint	Site wide	Watercourses and sea
Duration	Long-term	Short-term	Long-term	Short-term (event) medium-term (recovery)
Reversibility	Irreversible for operation loss, reversible for additional construction loss	Reversible	Irreversible	Reversible
Frequency	One-off	One-off	One-off	Intermittent
Probability	Likely	Unlikely	Unlikely	Unlikely
Magnitude	Minor-Negligible	Minor-Negligible	Negligible	Negligible

Effects on Otter

6.6.38 This section describes the predicted effects on otters that could arise from the construction and operation of the Proposed Development. Embedded mitigation, including avoidance and minimisation to reduce potential effects are described.

6.6.39 The construction and operation of the Proposed Development has the potential to adversely affect otter directly or indirectly in a number of ways:

- physical damage or loss of holts, feeding and resting sites from construction;
- damage/destruction to routes used by otters while crossing the Study Area (severance);
- damage to watercourses by runoff, pollution and blocking of streams;
- disturbance caused by noise of construction or operation of Proposed Development; and

- direct injury or mortality.

6.6.40 Baseline survey for mammals are provided in Technical Appendix 6.4: Protected Terrestrial Mammal Survey Report (EIAR Volume 4) and (Figure 6.6: Protected Terrestrial mammal Signs (EIAR Volume 3a) and Table 6.8).

6.6.41 Otters are a specially legally protected (i.e. EPS). The population of otters using the Study Area is considered of national and international importance, as they are considered likely to be functionally linked to the internationally important population that is designated in the Yell Sound Coast SSSI and SAC. Otters are considered to have moderate sensitivity to human activities, with resting places and holts considered particularly highly sensitive.

6.6.42 In Shetland otters tend to be coastal. They can breed year-round, although a seasonal peak within the summer months, notably in June, is known to occur in Shetland. Holts are usually coastal in Shetland, although natal holts (places of shelter where cubs are born and reared) are usually hidden inland and away from watercourses. There is the possibility of a natal holt being in the vicinity of the Proposed Development.

6.6.43 Examples of embedded mitigation to avoid and minimise impacts to otters are provided in the Embedded Mitigation Section of this Chapter.

Physical Damage or Loss of Holts, Feeding and Resting Sites from Construction

6.6.44 The known holt location would not be lost or directly affected by construction land-take as it was recorded in boulders/riprap along the coastline in the northwest of the Site which was deliberately avoided by the design layout. The holt is c. 100-200 m from the nearest infrastructure, the hardstanding for Turbine 3. Therefore, there are **No Likely Direct Significant Effects** from loss of holts from land-take predicted.

6.6.45 Otters around the Study Area use the coastline and large waterbodies for foraging and feeding. The small watercourses within the Study Area are unlikely to support important fish populations (as they appear to have non-permanent flows), and although there may be some feeding opportunities on amphibians/birds, this is considered unlikely to form more than a very small portion of their diet. The coastline, waterbodies and the watercourses are avoided by the design layout. Therefore, there is no direct loss of feeding or foraging sites from construction, and **No Likely Significant Effects** are predicted.

6.6.46 Otter resting sites and couches (legally protected features) were commonly found along the coastline, which has been completely avoided by the design layout. Therefore, there is no direct loss of resting site and couches from construction, and **No Likely Significant Effects** are predicted.

6.6.47 Consequently, the magnitude of impact arising from the direct loss of holts, of feeding and resting sites (land-take) from the Proposed Development on otters is assessed as Negligible. The loss of feeding and resting sites from the Proposed Development is considered to be unlikely, never/one-off, irreversible and long-term and **No Likely Significant Effects** are predicted.

Severance

6.6.48 The Proposed Development includes nine new large watercourse crossings (for details see **Chapter 8: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)**). The watercourse crossings have the potential to disrupt otter movements, when they occasionally use the watercourses. In essence, the watercourse crossings or culverts could theoretically act as a barrier to movement between habitats. As part of the

standard/embedded mitigation, mammal friendly designs (with appropriate mammal ledges to provide routes for mammals to pass through) have been used in the design of large culverts/crossing points, e.g. at the nine watercourse crossings. It is also possible that otters may want to occasionally cross the site at different locations during construction and operation. To avoid blocking potential routes, and as part of standard/embedded mitigation, any fencing used during construction, operation or as part of the OBEHMP would have regular small gaps to enable otter to move through, as advised by the ECoW (mitigation reference: EC04 and EC05).

6.6.49 There would be a new track which would be an average width of c. 7 m wide. It is not considered likely that this track would impede otters from crossing the Site – otters routinely cross these in Shetland. Suitable tunnels or culverts would be built under new roads to provide safe access and crossing points (mitigation reference: EC09).

6.6.50 The magnitude of potential impact from severance is assessed as Negligible. With the embedded and standard mitigation, the impact of severance is considered to be unlikely, never/occasional, reversible and short-term and **No Likely Significant Effects** are predicted.

Damage to watercourses by runoff, pollution and blocking of streams

6.6.51 There is a water crossing proposed across Aywick Burn which otter are likely to use for foraging and freshwater bathing. However, there is no likely change in the water flow to this burn (see **Chapter 8: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)**). In the unlikely event that a serious pollution incident occurs, leading to a sudden pulse of pollutant, and if that was not readily contained, it might enter the aquatic environment and could affect otters directly e.g. by coating fur with oil or indirectly through damage to their prey species. However, taking into account the intended implementation of best practice pollution prevention measures (**Chapter 8: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)**), it is considered highly unlikely that a serious pollution incident would occur during construction and operation. Therefore, in the unlikely event that a pollution incident did occur, it is very doubtful that pollution would substantially affect otter foraging (as the coastline is very extensive). The magnitude of potential impact caused by a pollution event for otter is assessed as Negligible. With the embedded mitigation, the impact caused by a pollution event is considered to be unlikely, never/intermittent, reversible and short-term (event), with a medium-term recovery and **No Likely Significant Effects** are predicted.

Mortality caused by vehicle traffic during operation and construction activities

6.6.52 Vehicular traffic on the site would increase (from pre-construction baselines of occasional crofters, and vehicles around SVT and Shetland Gas Plant) during construction and operation, meaning that individual otters would have a slightly increased possibility (albeit still very small) of being injured or killed by vehicles. However, the existing inbuilt design measures (embedded/standard mitigation) means that an ECoW would ensure that pipes etc. are stored correctly (reducing likelihood of otters using them and being present in potentially 'high risk' areas) and enforced low vehicle speed limits (15 mph) would greatly reduce the likelihood of injury or death occurring during construction (mitigation reference: EC04 and EC11). Similarly, low enforced vehicle speed limits (15 mph) during operation would greatly reduce the likelihood of any operational mortality (mitigation reference: EC11). Otter crossing road signs would be located at the entrance to the site and at the large water crossings (mitigation reference EC12). Consequently, the magnitude of impact

of direct mortality from construction and operation of the Proposed Development is assessed as Negligible. With the embedded/standard mitigation, impact of direct mortality from construction and operation of the Proposed Development is considered to be unlikely, intermittent, irreversible for the individual but reversible for the population, and short-term and **No Likely Significant Effects** are predicted.

Disturbance caused by noise of construction and operation

6.6.53 The construction work would extend over a 24 month period, and be concentrated towards the centre of the Study Area, away from holts and foraging areas along the coast, or feeding areas at waterbodies. Disturbance to important otter locations is therefore likely to be minimal. There is potential for increased disturbance to otters crossing the site during construction. Artificial holts/shelters have been recommended to address this. Further details are provided in the OBEHMP (**Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**). The creation of these additional holts/shelters would be the subject of a suitably worded planning condition.

6.6.54 The magnitude of impact to otters as a consequence of potential disturbance from the construction of the Proposed Development is assessed as Negligible. With the suitable mitigation, the impact to otters as a consequence of potential disturbance from construction of the Proposed Development is considered to be unlikely, intermittent, reversible and short-term. Consequently, no likely significant effects are predicted.

Summary

6.6.55 In summary, with the implementation of standard best practice mitigation measures **No Likely Significant Effects** are predicted for otters in relation to the construction and operation of the Proposed Development (**Table 6.20**). Otters can be highly seasonal in terms of their use of an area, for example utilising otherwise unused burns when hunting for frogs and toads or traversing between catchments. Consequently, although there is no evidence that would suggest the Study Area is very important for otters, they do use the Study Area and therefore, being legally protected, pre-construction surveys would be conducted immediately around the Proposed Development Footprint before any construction commences. As such, a pre-construction protected species survey is recommended as a planning condition.

6.6.56 In order to prevent (non-significant) negative impacts on otter (which is legally protected) it is recommended that an OPP is developed and implemented for all stages of the Proposed Development construction. This is recommended as a planning condition.

6.6.57 If the Proposed Development was built, the available information indicates that conservation status of otters would not likely be affected because (as articulated in the Habitats Directive):

- Otters are likely to maintain themselves on a long-term basis and persist as a viable component of its habitat nationally in Scotland and in the Shetland region;
- The natural range of otters nationally in Scotland and in the Shetland region would not be reduced by the Proposed Development, nor would it become likely to be reduced in the foreseeable future; and
- There would be (and would continue to be) a sufficiently large habitat nationally in Scotland and in the Shetland region to maintain the population otter on a long-term basis should the Proposed Development be built.

Table 6.20: Summary of Predicted Impacts on Otter					
Parameter	**Habitat Loss**	**Severance**	**Pollution**	**Disturbance**	**Direct Mortality**
Positive/ negative/ neutral	Negative	Negative	Negative	Negative	Negative
Extent	*Across the Development Footprint*	*Across the Development Footprint*	*Watercourses and coastline*	*Site-wide*	*Development Footprint*
Duration	*Long-term*	*Short-term*	*Short-term (event) medium-term (recovery)*	*Short-term*	*Short-term*
Reversibility	*Irreversible*	*Reversible*	*Reversible*	*Reversible*	*Irreversible (for the individual) reversible (for the population)*
Frequency	*Never/one-off*	*Never/occasional*	*Never/Intermittent*	*Intermittent*	*Intermittent*
Probability	*Unlikely*	*Unlikely*	*Unlikely*	*Unlikely*	*Unlikely*
Magnitude	*Negligible*	*Negligible*	*Negligible*	*Negligible*	*Negligible*

Effects on Designated Sites

6.6.58 This section describes the predicted effects on qualifying features of designated sites that could arise, from the construction and operation of the Proposed Development. Embedded mitigation, including avoidance and minimisation to reduce potential effects are described.

6.6.59 There are seven statutory designated sites with ecological features within 10 km of the Proposed Development, as identified in **Table 6.4** and shown on **Figure 6.2: Designated Sites (EIAR Volume 3a)**. The closest and most relevant to the site was the Yell Sound Coast SAC and SSSI. The relevant qualifying feature of these designated sites are otter.

6.6.60 The final design shapefiles suggest a small amount of overlap with the SAC boundary. However, a commitment has been made by the Applicant that there would be no direct/indirect on the integrity of the SAC. In correspondence with NatureScot (March 2026) it was stated that "*The applicant is open to engaging further with NatureScot, at an appropriate stage following submission of the application, to discuss how a planning condition can be used to secure necessary mitigation measures to ensure that adverse effects on the integrity of the SAC are avoided, with no reasonable scientific doubt. We can confirm that this approach is acceptable*." We have been assured by the Ramboll design team that appropriate mitigation at the detailed design stage would result in no direct/indirect impacts on the integrity of the SAC and NatureScot have confirmed that they are content with this approach. Therefore, the assessment of impacts/effects on designated sites has been undertaken on that assumption. This would be secured through a planning condition. For further details see **Chapter 3: Design Evolution and Alternatives (EIAR Volume 2).**

6.6.61 When assessing impacts on designated sites it is important to consider whether the Proposed Development, or the associated activities, are likely to undermine the conservation objectives of the site, the condition of the site, or the conservation status of the species or habitats for which the site is designated [1]. Consideration should also be given to whether any process or key characteristic would be removed or changed, whether there would be an effect on the nature, extent, structure and function of component habitats and if there is an effect on the average population size and viability of species[1]. The conservation status of

designated features for the nearby designated sites are shown in **Table 6.21** (data from NatureScot Sitelink)[55].

6.6.62 A Habitats Regulation Appraisal (HRA) would be completed by the Competent Authority in relation to the Proposed Development and Yell Sound Coast SAC and SSSI. A competent authority would not authorise a project unless it can show beyond reasonable scientific doubt (through an appropriate assessment) that project would not adversely affect the integrity of a European site. All the information required for an HRA is provided in this EIAR ecology chapter and associated Technical Appendixes (notwithstanding the requirement of an agreed planning condition regarding integrity of Yell Sound Coast SAC).

Table 6.21: Condition and Adverse Pressure on the (non-marine) qualifying Features within the nearby Designated Sites

Designated site	Qualifying feature	Latest assessed condition	Adverse pressures identified
Yell Sound Coast SSSI	Otter	Unfavourable, no change 1 Apr 2015	Game/fisheries management
Yell Sound Coast SAC	*Otter*	*Unfavourable, no change* *1 Apr 2015*	*No information given.*

6.6.63 To assess whether impacts or associated activities of the Proposed Development are likely to undermine the conservation objectives of Yell Sound Coast SSSI and SAC, or whether there are likely impacts on e.g. the condition, or the conservation status of the species or habitats for which sites are designated, each conservation objective for each site are considered in turn in **Table 6.22** (conservation objectives for Yell Sound Coast SSSI taken from Yell Sound Coast Site Management Statement[56], conservation objectives for the Yell Sound Coast SAC Conservation and Management Advice[57]).

6.6.64 Otters within Yell Sound Coast SSSI and SAC being mobile have the potential to be impacted by the Proposed Development, through for example, mortality, habitat fragmentation, changes in population dynamics, changes to their food web and from pollution events. For further details see species specific assessment for otter contained in this Chapter. In summary, the conditions required to support the population of otter is unlikely to be substantially impacted by the Proposed Development and the viability of the designated site otter population is unlikely to be changed by the Proposed Development.

6.6.65 There may be some temporary noise disturbance from the construction and operation of the Proposed Development on otters in Yell Sound Coast SSSI and SAC where Turbine 3 and particularly Turbine 4 are very close. The construction work is estimated to extend over an approximate 24-month period, but the section of track and Turbine 3 and Turbine 4 should take 4-6 weeks. The working time for this area would directed away from the peak otter breeding season. Otters can breed at any time, however, in Shetland there is a peak of breeding activity (e.g. May-August). It should be recognised that the otters that are using

[55] NatureScot Site Link. (2026). Available from: https://sitelink.nature.scot/home. [Accessed 19/02/2026]

[56] NatureScot. (no date). Yell Sound Coast Site Management Statement. Available from: https://www.nature.scot/sites/default/files/site-special-scientific-interest/1686/site-management-statement.pdf [Accessed 20/03/2026]

[57] NatureScot. (2024). Yell Sound Coast SAC Conservation and Management Advice. Available from: https://sitelink.nature.scot/site/8409. [Accessed 20/03/2026]

this area are near SVT and Shetland Gas Plant. The known holt is c. 50 m away from the nearest existing SVT and Shetland Gas Plant infrastructure (at the end of a track) and so any otters using it would likely be used to a certain level of disturbance. The magnitude of impact to otters as a consequence of potential disturbance from the construction and operation of the Proposed Development is assessed as Minor. The impact to otters within Yell Sound Coast SSSI and SAC as a consequence of potential disturbance from construction and operation of the Proposed Development is considered to be unlikely, intermittent, and reversible for construction and operation. Consequently, **No Likely Significant Effects** are predicted. Nevertheless, a pre-construction otter survey is recommended as a planning condition to ensure the identification and protection of any resting/lie-up/holt features that might be used in the intervening period between that last otter survey and construction commencing (mitigation reference: EC02).

6.6.66 In summary, due to careful design and future detailed design avoidance measures as well as suitable mitigation there is no evidence that the Proposed Development would negatively impact upon the Yell Sound Coast SSSI or SAC and no likely significant negative effects are predicted.

Table 6.22: Assessment Summary of Impacts of the Proposed Development on the Designated Sites Conservation Objectives				
Designated site	**Conservation Objective**	**Consideration of Potential Impacts (Including Extent, Nature, Function, Population Size and Viability)**	**Does the Proposed Development Undermine Conservation Objective or Status?**	**Predicted Impacts**
Yell Sound Coast SSSI	To maintain the population and distribution of otters within the site.	For details see otter specific assessment contained in this Chapter. Some of the infrastructure from the Proposed Development (i.e. Turbine 3 and particularly Turbine 4) is very close to the Yell Sound Coast SSSI. However, there would be no loss of any known holt locations and the coastline, which is important for foraging, has been avoided. Positive impacts through reduced grazing pressure and peatland restoration would likely benefit otter prey abundance.	No.	No negative impacts predicted. Beneficial impacts predicted from habitat restoration predicted.
	To maintain the extent and condition of coastal habitats on which otters depend.	There would be no change in the extent of the coastal habitats on the SSSI from the Proposed Development. The OBEHMP would include a regular (annual) clean of the coastal habitat, which had many examples of plastic litter, old nets and lobster pots along it during surveys. This clearing of little would likely benefit otter.	No.	No negative impacts predicted. Beneficial impacts predicted from a cleaner coastline predicted.
Yell Sound Coast SAC	To ensure that the qualifying features of Yell Sound Coast SAC are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status.	For details see otter assessment contained in this Chapter. Otter are currently recorded as being in unfavourable condition in the Yell Sound Coast SAC. Objectives in the OBEHMP (**Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**) would support otter and contribute to achieving favourable conservation status. For example, providing alternative holt locations, cleaning the coastline and restoring bog habitat which would improve prey abundance.	No.	No negative impacts predicted. Beneficial impacts predicted from habitat restoration predicted.
	To ensure that the integrity of Yell Sound Coast SAC is restored in the context of environmental changes by	For details see otter specific assessment contained in this Chapter.	Potential to result in undermining of conservation objectives. However, as part of the embedded mitigation, a	No negative impacts predicted.

Table 6.22: Assessment Summary of Impacts of the Proposed Development on the Designated Sites Conservation Objectives				
Designated site	**Conservation Objective**	**Consideration of Potential Impacts (Including Extent, Nature, Function, Population Size and Viability)**	**Does the Proposed Development Undermine Conservation Objective or Status?**	**Predicted Impacts**
	meeting objectives 2a, 2b and 2c for each qualifying feature: 2a. Otter are viable components of the Yell Sound Coast SAC. 2b. The distribution of otter throughout the site is maintained by avoiding significant disturbance. 2c. The supporting habitats and processes relevant to otter are maintained, including prey resources for otter.	Some of the infrastructure from the Proposed Development (i.e. Turbine 3 and particularly Turbine 4) is very close to the Yell Sound Coast SAC. However, there would be no loss of any known holt locations and the coastline, which is important for foraging, has been avoided. There would be positive impacts through reduced grazing pressure and peatland restoration would benefit otter prey abundance. Therefore, it is considered likely that otter would remain a variable complement of the Yell Sound Coast SAC. Likewise, the distribution of otter within the SAC is likely to be maintained. However, if the infrastructure and associated earthworks did directly impact upon the SAC, (as the conceptual design currently indicates), then it could be considered that there was potential disturbance impacts on otters within the SAC and that the extent of the supporting habitats within the SAC were directly impacted. This would be considered a Likely Significant Effect, even though the magnitude would be small, it directly opposes the conservation objectives. A commitment has been made by the Applicant to at an appropriate stage following submission of the application, discuss how a planning condition can be used to secure necessary mitigation measures to ensure that adverse effects on the integrity of the SAC are avoided, with no reasonable scientific doubt. This would be secured through a planning condition (mitigation reference: EC01). On this basis, it is considered that there would be no negative disturbance to otter of impacts to the habitats and process within the SAC. Positive impacts are predicted from the OBEHMP.	commitment has been made by the Applicant to at an appropriate stage following submission of the application, discuss how a planning condition can be used to secure necessary mitigation measures to ensure that adverse effects on the integrity of the SAC are avoided, with no reasonable scientific doubt. This would be secured through a planning condition (mitigation reference: EC01). On this basis, it is considered that the Proposed Development would not undermine the conservation objectives of the Yell Sound Coast SAC.	Beneficial impacts predicted from habitat restoration predicted.

Cumulative Effects

6.6.67 The cumulative assessment is based on existing and proposed developments in the area. There is no published NS guidance for cumulative impact assessment on most ecological receptors. NS guidance on cumulative impact assessment of onshore wind farms is confined to landscape and birds. The key principle of NS cumulative impact assessment guidance for birds is to focus on any significant effects and in particular those that are likely to influence the outcome of the consenting process. Therefore, it follows that cumulative ecological impact should be considered on any impacts with likely significant effects, i.e. those likely to affect FCS. There are no likely significant effects predicted for any ecological receptors at the Proposed Development. Therefore, no effect is likely to influence the outcome of the consenting process, alone or in combination with other developments. Consequently, **No Likely Significant Cumulative Effects** are predicted.

6.7 Additional (Secondary) Mitigation

6.7.1 Additional (secondary) mitigation comprises site-specific mitigation which has been included to reduce the magnitude of impact/significance of effect identified through the EIA.

6.7.2 With the full implementation of proposed embedded mitigation measures including avoidance and minimisation through inbuilt design, plus the full implementation of standard (tertiary) mitigation measures including the PMP, CEMP and pollution control measures, there are no likely significant negative or adverse effects predicted for any potentially important ecological receptors and so a description of the measures envisaged to provide compensation is not required to be provided as part of the EIAR for the Proposed Development under the EIA Regulations.

6.7.3 As part of additional mitigation artificial holts/shelters would be created in suitable locations to provide resting places, both along the coast and along the main watercourse crossing, to provide shelter if they are disturbed. These would be installed at the earliest opportunity (dependent on locations). Further details are provided in the OBEHMP (**Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**). The creation of these additional holts/shelters would be the subject of a suitably worded planning condition. These are considered additional mitigation for non-significant effects on otter.

6.7.4 In light of NatureScot's peatland guidance[21] which recommends compensation/offset at a 1:10 ratio (lost:restored) (regardless as to whether effects are predicted to be significant or not) and the importance of blanket bog habitats, restoration has been included in the OBEHMP (**Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**). The OBEHMP addresses the relevant policies of NPF4. Peatland restoration would provide direct benefits in terms of restoration of blanket bog habitat, the assemblage of species that depend upon it and for the associated ecosystem services benefits e.g. the carbon storage and downstream water quantity and quality.

6.7.5 The planned OBEHMP work would include active peatland restoration of 247.9 ha, plus grazing sheep could be removed or reduced for the first two to five years after reaction on c. 505 ha of bog habitat (including blanket bog, wet modified bog and dry modified bog) and additional areas of wet and dry heath.

6.7.6 The predicted impact of the Proposed Development on bog habitats are calculated as:

- A total of c. 23.3 ha of bog habitat was predicted to be directly lost/impacted due to the Proposed Development.

- A further c. 15.0 ha of bog habitat was predicted to be indirectly impacted due to the Proposed Development.

6.7.7 Therefore, a total impacted bog habitat is calculated to be 38.3 ha of bog habitat. The 10x multiplier, which is recommended in NatureScot guidance[41] equates to 383 ha of peatland restoration.

6.7.8 The 'active' peatland restoration included in Objective 1 of the OBEHMP includes:

- Restoring c. 84.5 ha of bog of Actively Eroding bog.
- Reinstating 8.5 ha of reseeded grassland into blanket bog habitat.
- Restoring c. 52.0 km of erosion features and gullies.
- Blocking c. 27.7 km of drainage ditches and c. 40.9km of historic drains with flush like habitat.
- Restoring c. 0.8 km of peat cutting.

6.7.9 This gives a total of 'active' peatland restoration of c. 247.9 ha (note the temporary loss calculation was removed from these metrics using the clipping function in QGIS). The 247.9 ha of 'active' peatland restoration gives a 6.4 multiplier of the total predicted bog habitat directly and indirectly impacted by the Proposed Development providing offset/compensation for the predicted non-significant effects on blanket bog habitat.

6.7.10 Through OBEHMP Objective 2, sheep could be removed or reduced from 505 ha of bog habitat for 2-5 years following restoration, with ongoing reduced grazing pressure for the lifetime of the project, which, combined with the 'active' peatland restoration would give a 13x multiplier. **Technical Appendix 6.6: Peatland Habitat Restoration Opportunities for Neshion Energy Park (EIAR Volume 4)** provides further information advocates for use of 13x multiplier in this instance. Note that 10x is usually considered offsetting, with additional restoration included as biodiversity enhancement.

6.7.11 Additional offsite peatland restoration opportunities are also being sought by the Applicant as Objective 7 of the OBEHMP, but, as yet no land agreements have been made.

6.7.12 Further details are provided in the Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4), Technical Appendix 6.6: Peatland Habitat Restoration Opportunities for Neshion Energy Park (EIAR Volume 4) and Technical Appendix 8.5: Outline Peat Management Plan (EIAR Volume 4)).

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Table 6.23: Summary of Additional Mitigation					
Reference	**Phase***	**Description of Mitigation**	**Purpose of Mitigation**	**Means of Implementation**	**Consultation or Approval Required**
EC14	C and O	Implementation of OBEHMP Objective 4	Creation of Artificial Otter Holts	OBEHMP	Yes, with relevant statutory authorities e.g. NatureScot, SIC.
EC14	C and O	Implementation of OBEHMP Objective 1	Peatland restoration	OBEHMP	Yes, with relevant statutory authorities e.g. NatureScot, SIC.

**C=construction, O=operation and maintenance.*

6.8 Assessment of Residual Effects

6.8.1 With the implementation of proposed mitigation measures, there are no likely significant residual negative effects predicted for any potentially important ecological receptors and so offset/compensation is not necessary for the Proposed Development.

6.8.2 However, in light of NatureScot peatland guidance[21] which recommends compensation/offset at a 1:10 ratio (lost:restored) (regardless as to whether effects are predicted to be significant or not) and given the importance of blanket bog and peatland habitats in regard to carbon storage and carbon sequestration and the current climate emergency, peatland restoration has been included in the OBEHMP (**Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**). Peatland restoration would provide direct benefits to the blanket bog habitat, the assemblage of species that depend upon it and for the associated ecosystem services benefits e.g. the carbon storage and downstream water quantity and quality. The planned OBEHMP restoration work would include at least 247.9 ha (1:6.4x multiplier of the total predicted loss of blanket bog) 'active' peatland restoration plus reduced grazing pressure on 505 ha (1:13x multiplier of the total predicted loss of blanket bog) of peatland habitat providing offset/compensation for the predicted non-significant effects blanket bog habitat.

6.8.3 Residual beneficial effects from the fully implementation of the OBEHMP are predicted.

6.8.4 If the peatland restoration actions, identified within the OBEHMP, are taken forward, which would only happen if the Proposed Development is consented, then these changes in habitat and hydrology, i.e. impeding the flow of water and wetting up areas of blanket bog, are likely to have a beneficial effect on bog habitat. These actions would:

- Reduce carbon loss;
- Secure the carbon store;
- Wet up vegetation;
- Restore hydrological conductivity;
- Provide ecological enhancement for a variety of species including invertebrates, birds and mammals; and
- Potentially create additional areas where carbon is actively being sequestered.

6.8.5 Taking into account peatland restoration including erosion feature restoration, drainage ditch blocking, infilling of peat cuttings and restoring of bare peat surface, the magnitude of beneficial change on the qualifying habitat features as a consequence of changes in drainage from the magnitude of peatland restoration is assessed as **Medium**. The indirect impact on habitats as a consequence of changes in drainage is considered to be likely, one-off, permanent and long-term and likely significant positive effects are predicted.

6.8.6 A summary of the additional mitigation is set out in **Table 6.23.**

6.9 Enhancement

6.9.1 The OBEHMP identifies six main enhancement objectives to be implemented within the Study Area, further information is provided in **Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**.

6.9.2 The objectives within the OBEHMP include:

- Objective 1: Peatland restoration;
- Objective 2: Reduce grazing pressure;

- Objective 3: Creating and strengthening nature networks;
- Objective 4: Creation of artificial otter holts;
- Objective 5: Removal of waste along the coastline; and
- Objective 6: Target Species Action.

6.9.3 Each of these objectives would benefit ecology and biodiversity in specific, measurable and targeted ways to enhance the wider ecosystem, and there would be significant biodiversity enhancement based on such measures. They are all linked to relevant policies in NPF4 and SIC Advice Note 14 Delivery of Biodiversity Enhancement on Local Developments.

6.10 Monitoring

6.10.1 Monitoring would include:

- An ECoW being present during construction work ensuring avoidance and minimisation of impacts on ecological features such as Near-Natural blanket bog, bog pools and protected terrestrial mammals.
- Monitoring of water quality as per **Chapter 8: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)**.
- Ongoing monitoring of the OBEHMP (**Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**). Details of this are specified within the OBEHMP.

6.11 Summary of Potential Significant Effects

6.11.1 This assessment does not predict any likely significant adverse ecological residual effects associated with the Proposed Development.

6.11.2 **Table 6.24** provides a summary of the conclusions of the EcIA with respect to each ecological receptor taking into consideration embedded and any additional mitigation measures.

Table 6.24: Summary of Potential Significant Effects

Receptor	Potential Impact	Likely Significance of Effect	Mitigation Proposed	Residual Effect	Monitoring
Construction and Operation					
Bog Habitat	Enhancement	Positive effects	OBEHMP (mitigation reference: EC14)	-	OBEHMP
Otter	Enhancement	Positive effects	OBEHMP (mitigation reference: EC14)	-	OBEHMP
Designated Sites	Enhancement	Positive effects	OBEHMP (mitigation reference: EC14)	-	OBEHMP
Cumulative Construction and Operation					
None					

7 Ornithology

7.1 Executive Summary

7.1.1 The Ornithology chapter considers the likely effects of the Proposed Development on ornithological receptors at the Site and surrounding Study Area, during construction and operation. This assessment is based upon comprehensive baseline data, comprising specifically of targeted ornithological field surveys of important and specially protected ornithological receptors identified during desk study. It draws upon pre-existing information, where appropriate, from other studies, survey data sources and NatureScot and the Chartered Institute for Ecology and Environmental Management (CIEEM) best practice guidance.

7.1.2 Targeted baseline ornithological surveys, following best practice guidance, were undertaken within the Site and surrounding Study Area between 2022 and 2024. The desk study and targeted field surveys, identified the following important ornithological receptors potentially affected by the Proposed Development: namely designated sites (and their qualifying species), and fifteen wider countryside species: red-throated diver, golden plover, ringed plover, dunlin, lapwing, redshank, whimbrel, curlew, merlin, great black-backed gull, common gull, herring gull, Arctic tern, Arctic skua and great skua.

7.1.3 Potential direct and indirect impacts were assessed following best practice guidance and were considered both during construction and during operation. Impacts on potentially sensitive ornithological receptors were avoided and minimised wherever possible in line with National Planning Framework 4 (NPF4) and best practice guidance and were incorporated into the design process (embedded mitigation).

7.1.4 This assessment does not predict any likely significant ornithological residual effects associated with the construction and operation of the Proposed Development.

7.1.5 Extensive opportunities for habitat restoration and enhancement described in the Outline Biodiversity Enhancement and Habitat Management Plan (OBEHMP) (**Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**) in accordance with Policy 3 of NPF4 are considered likely to benefit blanket bog specialists, specifically breeding red-throated divers and waders.

7.2 Introduction

7.2.1 This chapter considers the likely significant effects on ornithological receptors associated with the construction and operation of Neshion Energy Park ('the Proposed Development').

7.2.2 The Proposed Development is a renewable energy development comprised of up to eight wind turbines, a Battery Energy Storage System (BESS) and associated infrastructure adjacent to Sullom Voe Oil Terminal (SVT) and the Shetland Gas Plant in Shetland, Scotland. The assessment is based on the Proposed Development as described in **Chapter 2: Proposed Development (EIAR Volume 2)**.

7.2.3 The specific objectives of the chapter are to:

- describe the existing ornithological baseline context and cumulative context;
- describe the assessment methodology and significance criteria used in completing the impact assessment;
- describe the potential effects, including direct, indirect and cumulative effects;

- describe the mitigation measures proposed to address any potential likely significant effects; and
- assess the residual effects remaining following the implementation of mitigation.

7.2.4 Alba Ecology Ltd. staff led on all aspects of the ornithological fieldwork and assessment in association with the Proposed Development. Alba Ecology Ltd. is a highly experienced Scottish-based multi-disciplinary ecological consultancy that has worked in Scotland and Shetland specifically for many years. Alba's staff have led on, and contributed to, all aspects of Ecological Impact Assessment (EcIA) on many large-scale wind farm development projects across Scotland including the management of Ecological Clerks of Work (ECoW) teams, principal ornithological surveyors and advisors on planning applications, expert witness at Public Local Inquiry and production of Environmental Impact Assessment Reports (EIAR), Habitat Regulations Assessments and Biodiversity Enhancement and Habitat Management Plans.

7.2.5 The ornithological surveyors who undertook the surveys for the Proposed Development were David Cooper, Donald Shields (MCIEEM) and Dr Peter Cosgrove (FCIEEM) of Alba Ecology Ltd. The surveyors have extensive ornithological field experience across Shetland and have attended training events led by experts, covering areas such as species identification, recording data concisely and accurately, navigation techniques and health and safety. Surveyors were trained to carry out surveying and mapping work in a systematic manner, following recognised standardised best practice survey methods.

7.2.6 This chapter is supported by the following figures and technical appendices:

- Volume 3a: Figures:
  - **Figure 7.1: Proposed Development Site;**
  - **Figure 7.2: Ornithological Study Area;**
  - **Figure 7.3: Statutory Designated Sites within 10 km with Ornithological Features;**
  - **Figure 7.5: Golden plover Territory Centres 2022-2023;**
  - **Figure 7.6: Ringed Plover Territory Centres 2022-2023;**
  - **Figure 7.7: Dunlin Territory Centres 2022-2023;**
  - **Figure 7.8: Lapwing Territory Centres 2022-2023;**
  - **Figure 7.9: Redshank Territory Centres 2022-2023;**
  - **Figure 7.11: Curlew Territory Centres 2022-2023;**
  - **Figure 7.12: Common Gull Colonies, 2022-2023;**
  - **Figure 7.13: Great Black-backed Gull Apparently Occupied Territories 2022-2023;** and
  - **Figure 7.14: Arctic skua Apparently Occupied Territories 2022-2023.**
- Volume 4: Technical Appendices:
  - **Technical Appendix 7.1: Birds Technical Report;**
  - **Technical Appendix 7.2: Collision Risk Assessment;**
  - **Technical Appendix 7.4: Cumulative Assessment Spreadsheet;**
  - **Technical Appendix 6.1: Natural Heritage Desk Study;**
  - **Technical Appendix 6.5: Outline Biodiversity Enhancement** and **Habitat Management Plan;** and
  - **Technical Appendix 7.5: Ornithology Methodology.**
- Volume 5: Confidential:

- **Figure 7.4: Red-throated diver breeding waterbodies 2022-2023 – Confidential;**
- **Figure 7.10: Whimbrel Territory Centres 2022-2023 – Confidential;**
- **Figure 7.15: Focal watch flightlines of breeding red-throated divers 2022-2023 – Confidential;** and
- **Technical Appendix 7.3: Confidential Information.**

7.2.7 Confidential figures and appendices will be supplied to relevant consultees.

7.2.8 This chapter should be read alongside other relevant chapters within the Environmental Impact Assessment Report (EIAR), particularly **Chapter 6: Ecology** and **Chapter 3: Design Evolution and Alternatives (EIAR Volume 4)**. In accordance with best practice EcIA guidance, this assessment involved the following key stages:

- Reference to relevant statutory and planning context i.e. legislation, policy and best practice guidance.
- Identification of likely zone of influence of the Proposed Development.
- Identification of potentially important ornithological receptors likely to be affected by the Proposed Development, i.e. determination of the existing baseline conditions.
- Evaluation of important ornithological receptors and features likely to be affected by the Proposed Development.
- Identification of likely impacts and magnitude of the Proposed Development works on important ornithological receptors.
- Assessment of the likely significant effects of the Proposed Development, including cumulative effects and any mitigation and enhancement measures.
- Assessment of any likely residual significant effects.

7.3 Assessment Methodology

Overview

7.3.1 The term 'receptor' is used throughout the EIA process and is defined as the element in the environment affected by a development (e.g. a bird species in the case of ornithology). The term 'impact' is also used commonly throughout the EIA process and is defined as a change experienced by a receptor (this can be beneficial, neutral or adverse). The term 'effect', which is also used commonly throughout the EIA process is defined as the consequences for the receptor of an impact. The use of the word 'effect' rather than 'impact' at the end of species and designated site accounts is based on the wording of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017[1], as amended (hereafter referred to as the 'EIA Regulations') which requires the determination of 'likely significant effects'.

7.3.2 Whilst considering a range of potential outcomes that could arise from the Proposed Development, the assessment reports the effects that are considered likely to be significant on the basis of evidence, best practice guidance and professional judgement. It is these likely significant ornithological effects that the Applicant is obliged to report, and that the decision maker is obliged to consider.

[1] Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. Available from: The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 [Accessed 26/03/2026]

Scope of Assessment

Potential Impacts Scoped In

7.3.3 The scope of the assessment has been informed by consultation responses detailed in **Technical Appendix 1.1: Consultation Register (EIAR Volume 4).** In March 2025, the Applicant submitted a Scoping Report (ECU Ref: ECU00006120) and a request for an EIA Scoping Opinion in relation to the Proposed Development to the Energy Consents Unit (ECU). The EIA Scoping Opinion by the Scottish Ministers was received on 27th June 2025. In November 2025, the Applicant submitted a Gatecheck Report to the ECU.

7.3.4 The Ornithology Chapter has been informed by the Scoping Opinion and subsequent correspondence. A site meeting was held with NatureScot on 20th August 2025 to discuss the potential design layout and ornithological receptors. Details of Scoping and Consultation are provided in **Technical Appendix 1.1: Consultation Register (EIAR Volume 4)**. Specific ornithological scoping comments are outlined in **Table 7.1**.

Table 7.1: Ornithological Scoping Comments

Consultee	Consultee Comment	Alba Ecology Response
NatureScot, Scottish Government Scoping Opinion, 27/06/25	East Mainland Coast Special Protection Area (SPA) This SPA lies only c. 1.8 km to the southeast of the development site. It is possible that some of the designated site's marine waterbirds may overfly the development site. It is also possible that Slavonian grebe may use some of the larger waterbodies within the development during winter hard weather. Vantage point (VP) survey work should follow Best Practice methods. As a coastal wind farm site, it has the potential to introduce novel issues, in the consideration of a nearby marine SPA, therefore we would welcome further dialogue from the Applicant/Alba Ecology to agree a survey methodology covering a two-year survey period to help show level of effects (or no effects) within the EIAR. It may be that bespoke survey methods are called for, especially to take into consideration diver moult periods. Otterswick and Graveland SPA This SPA lies within the red-throated diver connectivity (8 km core distance) of this development. VP survey work over a two-year period will be required, covering the main breeding season periods. Otterswick Site of Special Scientific Interest (SSSI) Advice is the same as that presented for the Otterswick and Graveland SPA. Ronas Hill – North Roe and Tingon SPA This SPA lies approximately 8.5 km away from this development. Thus, it lies outwith	East Mainland Coast SPA NatureScot's distance metrics are incorrect. The SPA boundary lies approximately 3.25 km from the nearest point of the Site not 1.8km as suggested. No Slavonian grebes were recorded during any ornithological surveys whatsoever. No large waterbodies lie within the Site. Large waterbodies within the Study Area, i.e. Loch of Mioness, Neshion Water, Sand Water, Nugla Water and Loch of Bordigarth have all been deliberately avoided by the design layout. Best practice VP survey methods were undertaken throughout. Potential impacts on red-throated diver are assessed within this chapter. Targeted breeding red-throated diver focal watch surveys and winter VP surveys fully covered the diver use of the Application Boundary and had a substantial influence on the final design layout (See **Technical Appendix 7.3: Confidential Information (EIAR Volume 5)**). Shortly after their breeding season ends, red-throated divers move into the marine environment for the autumn and winter where they moult their flight feathers and become flightless for a period of approximately 3 weeks[2]. There is no functional link between the freshwater bodies in the Application Boundary and red-throated divers

[2] Duckworth, J., O'Brien, S., Dunn, R.E., Petersen, I.K., Petersen, A., Benediktsson, G., Johnson, L., Lehikoinen, P., Okill, D.J., Väisänen, R., Williams, J., Williams, S., Daunt, F. and Green, J.A. (2024). Linking Foraging Behaviour and Habitat Preferences During Moult Across Multiple Populations of Red-Throated Diver. *Ecology and Evolution*, 14(12).

Table 7.1: Ornithological Scoping Comments		
Consultee	**Consultee Comment**	**Alba Ecology Response**
	SPA core connectivity distance for red-throated diver. As yet, there are no terrestrial connectivity distances for great skua (the other qualifying species). Wider countryside birds Whimbrel and Arctic skua should be scoped-in as red-listed UK breeding species. Cumulative impacts with other developments within the same Natural Heritage Zone (NHZ) should be taken into consideration when presenting potential impacts to the NHZ population, including recent assessments on populations from bird flu. The Scoping Report appears to lack detail of which wider countryside species will be scoped in for more detailed assessment. We note the Scoping Report has recognised bird constraints in the south of the site which has already informed early layout changes.	whatsoever during this flightless period. Otterswick and Graveland SPA There is no functional biological link to this SPA (nor the Otterswick SSSI) for any ornithological receptor, although this is within theoretical connectivity distances. Ronas Hill – North Roe and Tingon SPA There is no functional biological link to this SPA for any ornithological receptor, and it is beyond known theoretical connectivity distances. Wider countryside birds This chapter transparently scopes in a series of wider countryside species, presenting data on their occurrence and population status. Bird population metrics from NHZ 1 - Shetland used. The rationale for highlighting the bird constraints in the south of the Study Area and removing all turbines from this area is explained within this chapter and **Chapter 3: Design Evolution and Alternatives (EIAR Volume 2)**.
RSPB Scotland, Scottish Government Scoping Opinion, 27/06/25	Overall, we agree with the nature and scope of the ornithological surveys, and the species listed in the Scoping Report as potentially important ornithological receptors. Whilst recognising all the uncertainties, RSPB suggests that decommissioning impacts of the Proposed Development should be included in the EIA. Cumulative Effects RSPB is concerned about the cumulative effects on birds as a result of operational, consented, and planned wind farm developments across Shetland. RSPB also strongly recommend that a cumulative/in-combination wind farm map is produced which shows cumulative development in relation to designated sites, including the Ronas Hill, Otterswick and Graveland SPAs, associated SSSIs and Bordigarth Local Nature Conservation Site (LNCS). Disturbance, displacement, loss of suitable habitat (breeding, wintering and foraging) and collision risk should be assessed for all scoped in species, both during construction and operation. <u>Biodiversity Enhancement</u> The Applicant should consider in detail how positive effects for biodiversity would be delivered at as early a stage as possible and provide as much detail as they can at the application stage to allow an assessment of whether there would be reasonable certainty that it could be delivered and secured. We	Full details of bird surveys and their associated assessment are provided within this chapter and its associated technical appendices. An assessment of the ornithological impacts of decommissioning the Proposed Development has not been undertaken. For details see Section 7.3.11 - 7.3.16 in this chapter. Cumulative Effects Whilst cumulative effects are considered within this chapter, this is challenging for a range of reasons e.g. access to data, previous effects assessed using out of date, now incorrect, avoidance rates etc. NatureScot typically provides a spreadsheet (and relevant bird data) for the assessment of cumulative impacts of wind farms on NHZ/designated sites and their qualifying features. This was requested from NatureScot on 10/03/26, but contrary to elsewhere in Scotland, they stated "*that we don't provide a spreadsheet*". Many of the predicted impact metrics from other developments are not in the public domain, whereas NatureScot holds such information on all of those developments within the planning system. Disturbance, displacement, loss of suitable habitat (breeding, wintering and foraging) and collision risk are all

Table 7.1: Ornithological Scoping Comments		
Consultee	**Consultee Comment**	**Alba Ecology Response**
	welcome that the mitigation hierarchy should be followed, and any mitigation, compensation and enhancement measures clearly and separately identified within the EIA and other accompanying documents. In addition to the production of a draft Outline Biodiversity Enhancement and Habitat Management Plan (OBEHMP), appropriate Species Protection Plans (SPP) should be drafted. Lastly, the OBEHMP should also include a protocol for reporting collisions to NatureScot. We are aware that some existing operators already have such protocols in place.	considered and assessed within this chapter. <u>Biodiversity Enhancement</u> **Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management (EIAR Volume 4)** outlines the biodiversity enhancement measures proposed by the Applicant. SPPs would be developed immediately ahead of construction, specifically through implementation of a Breeding Birds Protection Plan.
Shetland Islands Council (SIC), Scottish Government Scoping Opinion, 27/06/25	SIC repeats the issues raised by NatureScot in their Scoping response, mostly in relation to designated sites and wider countryside species. Biodiversity Enhancement and Management Plan SIC recommend the Applicant splits Biodiversity Enhancement (as a duty to comply with National Planning Framework 4 (NPF4)) into a separate document/section from any Habitat Management to help mitigate impacts from the development. Discrepancy of Bordigarth LNCS boundary The larger LNCS boundary provided by the SBRC reflects the actual distribution of interest feature that the site was originally designated for. Although it has not been formally consulted on it should be regarded as a draft boundary. We would also highlight that the site is designated as a breeding location for a species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and given the prominence of biodiversity in NPF4 this must be fully considered in the EIA. Ornithology We note that the NatureScot 'Guidance Note - Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas' is cited. And that the SNH (2017) 'Recommended bird survey methods to inform impact assessment of onshore windfarms' is cited as the method used. The NatureScot website indicates that the latter was updated in March 2025. It should be confirmed whether the surveys undertaken in 2022-2024 still comply with currently recommended methods, and if not, any differences to recommended methodology since the time when the surveys were conducted should be detailed and potential impacts assessed. SIC agree that the potential effects as outlined in the Scoping Report should be scoped in. Assessing cumulative impacts will be a key part of the assessment. It is important to ensure that this assessment is	Clear distinctions in the types of biodiversity enhancement is provided in **Chapter 6: Ecology (EIAR Volume 2)** and **Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**. Full consideration of Schedule 1 breeding bird species present within the Study Area and Bordigarth LNCS is provided within this chapter. The ornithological surveys conducted complied with the best practice methodologies at the time the surveys were undertaken in 2022-2023. We are not aware of any 2025 recommended methodologies that substantially deviate from those undertaken using the previous guidance, which was relevant when the surveys were undertaken. There are two notable exceptions to this. Firstly, Alba Ecology surveyors collected breeding and flightline data on gulls in 2022-2023, not required in NatureScot guidance at the time of survey, but now considered best practice. Secondly, the analysis of flightline data collected during VP surveys. These have been analysed using the latest up to date NatureScot Collision Risk Modelling (CRM) guidance (**Technical Appendix 7.2: Collision Risk Assessment (EIAR Volume 4)**). The results of this new approach to CRM have been presented within this chapter and the older CRM (relevant in 2022-2023) has not been used. Cumulative impacts on birds are assessed, within the limitations previously highlighted. The potential impacts of turbine lighting on birds is considered.

Table 7.1: Ornithological Scoping Comments		
Consultee	**Consultee Comment**	**Alba Ecology Response**
	based upon the most accurate Shetland population data available. The impacts of turbine lighting at night on birds should also be considered.	
NatureScot Site visit, 20/08/25	NatureScot attended a Site visit with the Applicant and Alba Ecology. They discussed the key ornithological findings of surveys undertaken and how these had influenced successive design iterations of the Proposed Development. NatureScot understood the sequential logic of addressing macro-avoidance of key ornithological considerations such as Schedule 1 species before/above other slightly less important ornithological considerations. NatureScot asked to see a summary map of key breeding constraints ahead of the EIAR submission.	The Applicant agreed to ensure that all design iterations which were made in relation to key ornithological receptors would be captured in the EIAR and framed within the context of the Mitigation Hierarchy as per NFP4. Alba Ecology supplied a summary of key breeding constraints (including Schedule 1 species) from within the Study Area to NatureScot ahead of EIAR submission.

7.3.5 The approach used to assess the likely significance of effects of the Proposed Development upon ornithological receptors is set in the context of the following best practice guidelines, international commitments, legislation and planning policies relevant to the protection, conservation and enhancement of ornithological interests associated with the Proposed Development:

- The Wildlife and Countryside Act (1981, as amended);
- European Biodiversity Strategy (2011 and 2020);
- European Directive 2004/35/CE (2004) on environmental liability with regard to the prevention and remedying of environmental damage;
- EC Directive 2009/147/EC on the conservation of wild birds (codified version). The so-called 'Birds Directive';
- EC Directive 1992/43/EEC on the conservation of natural habitats and of wild fauna and flora. The so-called 'Habitats Directive';
- The Conservation (Natural Habitats) Regulations (1994). The so-called 'Habitats Regulations';
- The Conservation of Habitats and Species Regulations (2010);
- The Nature Conservation (Scotland) Act (2004, as amended);
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended);
- National Planning Framework 4 (NPF4, 2023);
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, as amended (Scottish Government);
- Scottish Biodiversity Strategy to 2045: Tackling the Nature Emergency in Scotland (Scottish Government);
- Scottish Government Planning Guidance: Biodiversity (Scottish Government, 2025);
- Onshore Wind Policy Statement (Scottish Government, 2022);
- The Scottish Biodiversity List (SBL, as amended);
- The Shetland Local Development Plan (Shetland Islands Council, 2014);

- Survey Methods for Use in Assessing the Impacts of Onshore Windfarms on Bird Communities (Scottish Natural Heritage (SNH)/NatureScot guidance);
- Assessing Significance of Impacts from Onshore Windfarms on Birds Outwith Designated Areas (SNH/NatureScot guidance, 2018; 2025 update);
- Monitoring the Impact of Onshore Wind Farms on Birds (SNH/NatureScot guidance);
- Guidance on Methods for Monitoring Bird Populations at Onshore Wind Farms (SNH/NatureScot guidance);
- Assessing the Cumulative Impact of Onshore Wind Energy Developments (SNH/NatureScot guidance);
- Avoidance Rates for Wintering Species of Geese in Scotland at Onshore Wind Farms (SNH/NatureScot guidance);
- Gilbert, G., Gibbons, D.W. and Evans, J. (1998). Bird Monitoring Methods: a manual of techniques for key UK species. RSPB, Sandy.
- Wilson *et al.*, (2015). Natural Heritage Zones Bird Population Estimates. Scottish Windfarm Bird Steering Group Commissioned Report 150413;
- Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. and Thompson, D. (2013). (3rd Edition). Raptors, a field guide to survey and monitoring. The Stationery Office, Edinburgh;
- Wilson, M.W., Austin, G.E., Gillings, S. and Wernham, C.V. (2015). Natural Heritage Zone Bird Population Estimates. SWBSG Commissioned Report: 1504;
- Ruddock, M. and Whitfield, P. (2007; and 2022 update). A review of disturbance distances in selected bird species. A report from Natural Research (Projects) Ltd to SNH;
- Chartered Institute of Ecology and Environmental Management (CIEEM) (2018, updated 2024) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.3; and
- Scottish Renewables (2025). Guidelines on Streamlining Environmental Impact Assessment for Onshore Wind Farms.

7.3.6 Through a combination of desk study, scoping and consultation, direct site knowledge/survey data and NatureScot/CIEEM best practice guidance, ornithological surveys were undertaken to help inform the potential impact assessment of the Proposed Development on key ornithological receptors. All the field surveys were undertaken by highly experienced and licensed Alba Ecology ornithologists using recognised standard survey methods, during appropriate times of year and under suitable weather conditions for the species concerned. Any departures from standard guidance are explicitly stated and reasons for the any departure are given. Further details of ornithological survey methodologies and results can be found in **Technical Appendix 7.1: Birds Technical Report (EIAR Volume 4)**.

7.3.7 According to NatureScot[3] wind farms present four main potential risks to birds, which should be considered in EIA (**Table 7.2**).

[3] NatureScot (2025) Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas.

Table 7.2: Potential Impacts Considered within the Assessment		
Potential Impact	**Phase***	
	C	O
Direct mortality or injury through collision with turbine blades or towers		X
Direct habitat loss (so called 'land-take') due to the construction of wind farm infrastructure	X	
Displacement through indirect loss of habitat if disturbance causes birds to avoid the wind farm and surrounding area.	X	X
Barrier effects[4] if bird populations are prevented from reaching some destination.	X	X

*C=construction, O=operation and maintenance, X=denotes potential impacts considered in assessment

7.3.8 Potential construction impacts on birds include direct habitat loss, temporary noise and vibration disturbance, severance/fragmentation of otherwise connected habitats, direct mortality (e.g. destruction of nests or chicks), and pollution and sediment release into watercourses and water bodies. The proposed construction works are set out in **Chapter 2: Description of the Proposed Development (EIAR Volume 2)**, including anticipated timescales for proposed construction works.

7.3.9 Potential operational impacts on birds include indirect habitat loss through disturbance (resulting in displacement elsewhere if suitable habitats are available), impacts on hydrology potentially resulting in changes to bird habitats and death and injury from bird collisions with turbine blades.

7.3.10 This chapter assesses cumulative effects as arising from the addition of the Proposed Development to other cumulative wind farm developments, which are the subject of a valid planning application. Operational, under construction and consented wind farm developments are considered as part of the cumulative baseline.

Potential Impacts Scoped Out

7.3.11 Ornithological impacts arising from the process of decommissioning have been scoped out. An assessment of the ornithological impacts of decommissioning the Proposed Development has not been undertaken as part of the EIA because: (i) the future baseline conditions in forty years (ornithological and other developments) cannot be predicted accurately at this stage, particularly during an era of rapid climate change; (ii) the proposals for decommissioning are not known at this stage, and (iii) the best practice decommissioning guidance methods would likely change during the lifetime of the Proposed Development and so cannot be predicted at this stage. Nevertheless, the Applicant commits to an additional consultation one year in advance of the year of decommissioning and to implement best practice decommissioning methods at the time of decommissioning. General decommissioning plans are considered within **Chapter 2: Description of Proposed Development (EIAR Volume 2)**.

[4] Displacement and barrier effects are often combined under a heading of overall Disturbance effects.

7.3.12 The EIA Regulations require all likely significant effects (both beneficial and adverse) to be considered and as such impacts that are not likely to result in significant effects have been scoped out of the assessment. This is usually taken to mean site specific related effects, although this is not as straightforward as it first appears to be. For example, the benefits to ornithological receptors stemming from the contribution made by the Proposed Development towards countering the climate crisis through renewable energy generation cannot yet be quantified. Nevertheless, it is clear that a wind farm of the size of the Proposed Development would make a beneficial contribution to meeting national CO_2 emission targets as well as reducing actual CO_2 emissions, helping to combat the climate crisis, a significant threat to bird habitats and species globally. Uncertainties regarding climate change predictions mean that it is not possible at present to carry out a quantitative assessment of the beneficial impacts of wind farms to birds. Therefore, these have been scoped out of further consideration although the contribution wind farms make to tackling climate change and thereby supporting biodiversity are explicitly acknowledged in recent Scottish Government polices e.g. NPF4.

7.3.13 The Proposed Development would require a scheme of aviation lighting (**Chapter 11: Aviation (EIAR Volume 2)**), which could, in theory, result in potential displacement and/or disturbance of breeding birds. Directional intensity mitigation is embedded within the design of the lights. Standard specification aviation lighting is designed to meet prescribed candela ratings in the vertical plane and at lower viewing angles the intensity experienced by potentially sensitive ornithological species would be reduced.

7.3.14 NatureScot, in their standing advice on turbine lighting and birds[5] states: "*The effect of lighting has received relatively little attention though the potential for this to act as an attractant, thus increasing the risk of collision, could become an issue that requires assessment in some situations*". The guidance then states that there are a few limited situations that could give rise to a greater risk. "*Based on an assessment of the published literature, the principal susceptible species are likely to be*:

- *Burrow nesting seabirds (i.e. petrels, shearwaters and Atlantic puffin); and*
- *Nocturnally migrating passerines.*

For other species, especially resident breeding birds, there is little published evidence which suggests that lights on turbines are likely to present an existential risk to the viability of species populations, at any spatial scale".

7.3.15 Neither scenario (burrowing nesting seabirds nor nocturnally migrating passerines) applies to the Proposed Development. Consequently, operational disturbance/displacement impacts on breeding species through aviation lighting on turbines are assessed as likely to be negligible and no adverse effects are predicted. Under this scenario, no offences under the Wildlife and Countryside Act 1981 (as amended) are likely and the potential for turbine lighting impacts on sensitive ornithological receptors within the Study Area is scoped out of further consideration. Finally, it should be noted that any turbine lighting considerations in relation to ornithology should be seen in the context of the two large adjacent stack flares at SVT which burn 24 hours a day and typically dominate and illuminate the night sky within much of the Study Area and can be seen from many miles around.

[5] NatureScot (2015). *Information note - The Effect of Aviation Obstruction Lighting on Birds at Wind Turbines, Communication Towers and Other Structures*.

Method of Baseline Characterisation

Extent of the Study Area

7.3.16 The Proposed Development Site, defined by the Application Boundary, is illustrated on **Figure 7.1: Proposed Development Site (EIAR Volume 3a),** and the Ornithological Study Area is illustrated in **Figure 7.2: Ornithological Study Area (EIAR Volume 3a)**. The following geographic definitions (**Table 7.3**) are used in this chapter and associated Technical Appendices.

Table 7.3: Geographical Area Definitions: Ornithology

Term	Definition
Site	The Site refers to all the land within the Application Boundary. It covers an area of approx. 303 ha and comprises an undulating plateau that ranges in elevation from mean high-water at the northern most extent by Ay Wick to approx. 110 m above sea level on the Hill of Crooksetter. The Site includes the footprint of the Proposed Development including up to eight turbines and associated infrastructure, an internal access route network, transformers and underground cables, onsite substation/control building, remote sensing equipment for measuring wind conditions, a battery energy storage system (BESS) equipment and a temporary construction compound.
Turbine Area	This equates to all the land within 500 m of the proposed turbines, including the turbine sweep.
Study Area	This equates to all the land within the Site, which was originally considered to have potential for development (including the Original Application Boundary from 2022, which was subsequently reduced in size following ornithological advice from Alba Ecology), plus an appropriate survey buffer. This buffer can be variable depending on the ornithological receptor e.g. 500 m for all breeding bird species, except 1 km for divers and 2 km for raptors[6]. It should be noted that the Study Area is considerably larger than the Site.

Desk Study

7.3.17 The Natural Heritage Desk Study (**Technical Appendix 6.1: Natural Heritage Desk Study (EIAR Volume 4)**) was conducted using the relevant sources of data including the NatureScot SiteLink website, the Shetland Biological Records Centre (SBRC), the National Biodiversity Network Atlas, and data NatureScot provided on their Natural Spaces data-share facility. All known records of important ornithological receptors within a 2 km radius of the Site were identified.

7.3.18 A total of 11 statutory designated sites with ecological features, within a 10 km radius of the Application Boundary, have been identified (**Technical Appendix 6.1: Natural Heritage Desk Study (EIAR Volume 4)**). Of these, five statutory designated sites hold ornithological qualifying features (**Table 7.4**) and are illustrated on **Figure 7.3: Statutory Designated Sites within 10 km with Ornithological Features (EIAR Volume 3a)**).

Table 7.4: Statutory Designated Sites with Ornithological Qualifying Features

Site	Size	Distance/Direction	Qualifying Features
Ronas Hill - North Roe and Tingon SPA	5,474.3 ha	8.5 km, north west	Breeding great skua; and Breeding red-throated diver
Ronas Hills – North Roe SSSI	4,900.9 ha	8.5 km, north west	Breeding red-throated diver

[6] SNH. (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms (version 2). NatureScot (2025). Recommended bird survey methods to inform impact assessment of onshore windfarms.

Table 7.4: Statutory Designated Sites with Ornithological Qualifying Features			
Site	**Size**	**Distance/Direction**	**Qualifying Features**
Otterswick and Graveland SPA	2,239.6 ha	6.8 km, north east	Breeding red-throated diver
Otterswick SSSI	1,388.3 ha	6.8 km, north east	Breeding red-throated diver
East Mainland Coast, Shetland SPA	23,333.23 ha	3.25 km, south east	Wintering great northern diver, breeding red-throated diver and wintering Slavonian grebe

7.3.19 There is a single non-statutory Local Nature Conservation Site (LNCS) within a 10 km radius of the Application Boundary, Bordigarth LNCS, which is designated for breeding Schedule 1 bird species (**Figure 7.3: Statutory Designated Sites within 10 km with Ornithological Features (EIAR Volume 3a)**). The boundary of the LNCS, according to the Shetland Local Development Plan Supplementary Guidance[7] is a different boundary to the one provided by SBRC. Regardless, it lies within the southern part of the Study Area. Prior to Scoping, research could not identify a published explanation for the apparent discrepancy between the description and boundary of the Bordigarth LNCS provided by Shetland Islands Council (SIC) and that provided by SBRC. However, in their 2025 Scoping response SIC stated that "*The larger LNCS boundary provided by the SBRC reflects the actual distribution of interest feature that the site was originally designated for. Although it has not been formally consulted on it should be regarded as a draft boundary*". Therefore, the smaller area identified in the Shetland Local Development Plan Supplementary Guidance is the actual designated LNCS area.

Field Survey

7.3.20 In accordance with Scottish Renewables best practice guidance on streamlining EIA for onshore wind farms[8], full survey methods do not need to be presented in EIA Reports where they follow recognised standard methods[9]. If proposed methods deviate from established best practice, then full details should be provided. The following surveys were undertaken across the Study Area in 2022-2024.

FLIGHT ACTIVITY SURVEYS

7.3.21 Vantage Point watches were undertaken for target species between 2022 and 2024. Further information including, methods, limitations and results, is provided in **Technical Appendix 7.1: Birds Technical Report (EIAR Volume 4)** and **Technical Appendix 7.2: Collision Risk Assessment (EIAR Volume 4)**.

7.3.22 The new 2024 NatureScot updated Collision Risk Modelling (CRM) guidance was carefully followed by Alba Ecology during the production of this chapter to provide the relevant collision risk metrics associated with flightline activity surveys. Some of the gull flightline data was identified as being directional and so the directional CRM model was used following the 2024 guidance. However, based on our professional experience, a lower-than-expected collision risk was provided by the new 2024 version of the CRM. A comparison was then made with the previously used directional flightline CRM. It was identified that there is a large difference in the expected number of rotor passes and subsequent collision risk for directional bird

[7] Shetland Islands Council (2014) Supplementary Guidance Local Nature Conservation Sites Available from: https://www.shetland.gov.uk/downloads/file/1639/local-nature-conservation-site-supplementary-guidance [Accessed 27/03/2026]

[8] Scottish Renewables (2025). Guidelines on Streamlining Environmental Impact Assessment for Onshore Wind Farms.

[9] Gilbert, G., Gibbons, D.W. and Evans, J. (1998). Bird Monitoring Methods: a manual of techniques for key UK species. RSPB, Sandy.

flightlines between the latest 2024 NatureScot collision risk guidance and older NatureScot collision risk guidance (by approximately two orders of magnitude). Alba Ecology wrote to NatureScot (on 18/03/26) highlighting the issue and requesting that they investigate this difference and provide Alba Ecology with clarification on the 2024 guidance and/or potentially provide an appropriate course of action to take the directional flightline CRM forward. At the time of writing, no response was received from NatureScot on the matter.

BREEDING RAPTOR SURVEYS

7.3.23 Breeding raptor surveys followed best practice guidance[10] and extended out to 2 km from the Site for raptor species in 2022 and 2023. Further information is provided in **Technical Appendix 7.1: Birds Technical Report (EIAR Volume 4)**. To update the Schedule 1 breeding bird baselines, additional breeding raptor checks were also conducted in 2024.

MOORLAND BREEDING BIRD SURVEYS (BBS)

7.3.24 The modified/adapted Brown and Shepherd BBS[11] is the standard survey technique for moorland/upland open habitat breeding birds and these surveys were undertaken four times during each breeding season, at least seven days apart (approximately monthly between April-July 2022 and 2023). Further information is provided in **Technical Appendix 7.1: Birds Technical Report (EIAR Volume 4)**. To update the Schedule 1 breeding bird baselines, additional breeding whimbrel checks were also conducted in 2024.

BREEDING DIVER SURVEYS

7.3.25 Red-throated diver nest surveys were conducted on all potentially suitable breeding waterbodies from the Site at least twice during the breeding season out to a distance of 1 km in 2022 and 2023. If and when diver breeding waterbodies were identified, additional diver focal watches took place. Further information is provided in **Technical Appendix 7.1: Birds Technical Report (EIAR Volume 4)**. In accordance with NatureScot's updated 2025 guidance[12], no loch or lochan was discounted on size alone during diver surveys conducted in 2022-2023. To update the Schedule 1 breeding bird baselines, additional diver nest checks were also conducted in 2024.

UPDATED SURVEY GUIDANCE

7.3.26 All ornithological surveys complied with the relevant best practice survey guidance at the time the surveys were conducted. Since the main ornithological fieldwork was undertaken in 2022-2024, NatureScot (2025) has updated its guidance on onshore wind farm bird survey methods[13]. It should be noted that prior to the NatureScot (2025) survey guidance changing, Alba Ecology had already collected all gull flightline data in 2022-2024, although this was not standard best practice at the time.

[10] Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. and Thompson, D. (2013). (3rd Edition). Raptors, a field guide to survey and monitoring. The Stationery Office, Edinburgh.

[11] Gilbert, G., Gibbons, D.W. and Evans, J. (1998). Bird Monitoring Methods: a manual of techniques for key UK species. RSPB, Sandy.

[12] NatureScot (2025). Recommended bird survey methods to inform impact assessment of onshore windfarms.

[13] NatureScot (2025). Recommended bird survey methods to inform impact assessment of onshore windfarms.

Environmentally Sensitive Information

7.3.27 NatureScot guidance[14] sets out how to present sensitive ecological information in a way that does not compromise or threaten the species being considered. It states, "*Environmental statements prepared to support planning applications often need to incorporate environmentally sensitive information in the document. Releasing this information publicly could have unintended consequences and needs to be handled carefully*". Furthermore, "*Environmentally sensitive bird information is information which, if released, could jeopardise the status of a vulnerable species. Important examples of this are where release of that information may make it easier for an individual to take, kill, injure or disturb a bird, usually when occupying a nest site, when caring for dependent young or when occupying a communal winter roost*". Some species may also be vulnerable because releasing localities could increase unintentional disturbance e.g. people wanting to view/photograph a rare breeding species. "*Birds on Schedule 1 of the Wildlife and Countryside Act (1981), as amended by the Nature Conservation (Scotland) Act 2004, and species on Annex I of the EU Birds Directive fall into the category of having potentially sensitive data*".

7.3.28 There is a general presumption in favour of full disclosure (Regulation 10(2)(b) in the Environmental Information (Scotland) Regulations 2004). However, Regulation 10(5)(g) allows environmentally sensitive information to be withheld if its release would potentially harm the subject of the information. In these cases, NatureScot recommends using a confidential Annex/Appendix of Environmentally Sensitive Information, as set out in Scottish Government guidance on scoping for wind farm developments. The guidance notes that presenting data to a restricted audience is acceptable, but only when the data is sensitive enough to warrant it being withheld. It should not be used to limit proper public scrutiny of a development proposal[15]. Therefore, and in accordance with NatureScot guidance, all non-sensitive ornithological survey information is provided within this chapter. However, Schedule 1 nest site locations (and information such as flightlines that could lead to their discovery) are considered 'sensitive information' and confidential and so are presented separately in **Technical Appendix 7.3: Confidential Information (EIAR Volume 5)**.

Method of Assessment

Overview

7.3.29 Detailed information on the assessment methodology, including criteria for assessing sensitivity of receptors, Magnitude of Impact and Level of Effect, as well as cumulative effects, is provided in **Technical Appendix 7.5: Ornithology Methodology (EIAR Volume 4)**.

Limitations and Assumptions

7.3.30 The level of certainty of impact prediction varies depending upon a range of parameters. For some elements e.g. land-take it is relatively straightforward to assess and quantify the area of bird habitat that is likely to be lost to development infrastructure and therefore quantify potential impacts of land-take on the birds present. However, other impacts are less certain because there can be a range of possible scenarios e.g. displacement. The main limitations are common to most impact assessments because:

[14] SNH (2016). Environmental Statements and Annexes of Environmentally Sensitive Bird Information Guidance for Developers, Consultants and Consultees (version 2).

[15] SNH (2016) Environmental Statements and Annexes of Environmentally Sensitive Bird Information Guidance for Developers, Consultants and Consultees (version 2).

- Baseline surveys undertaken are based on sampling techniques, not absolute censuses. Results give an indication of the numbers of ornithological receptors recorded at the particular times that surveys were carried out. Species occurrence changes over time and therefore the results presented are snapshots in time. Importantly, no information gaps were identified in the baseline survey data that would prevent assessments in line with the requirements of the EIA Regulations to be undertaken.
- The 2022 H5N1 bird flu outbreak killed tens of thousands of birds, including many in Shetland. Consequently, published regional and national population estimates (most of which are based on pre-H5N1 bird flu population estimates) may not reflect actual current populations, which for some species are likely to be substantially lower than those published. However, if and when the Proposed Development is operational, it is assumed that affected bird populations would likely have recovered and therefore using pre-H5N1 bird flu survey data (the only such population data available) and population metrics is considered reasonable, so long as this assumption is recognised.

7.3.31 Where there is uncertainty, this is identified and reported transparently, along with the measures taken to reduce it, assumptions made, and an explanation as to the extent that any uncertainties are likely to affect the conclusions. In circumstances where there is uncertainty; evidence, expert opinion, best practice guidance and professional judgement have been used to evaluate what is biologically likely to occur if the Proposed Development is constructed. Where assumptions within the assessment are made, these are explicitly identified and explained. Similarly, limitations in methods and knowledge of species' ecology are also identified and discussed, particularly where this is likely to affect the outcome of the assessment.

7.3.32 Whilst some potential information gaps have been identified (e.g. post-H5N1 bird population estimates), it is considered that there is sufficient existing information to enable an informed decision to be taken in relation to the identification and assessment of likely significant effects on important ornithological receptors.

7.4 Baseline Conditions

Current Baseline

7.4.1 A summary of the main bird findings from two years of intensive ornithological surveys are provided below. Details of survey times, VP locations, VP viewshed coverage etc. are provided in **Technical Appendix 7.1: Birds Technical Report (EIAR Volume 4)**. A total of 57 bird species were recorded within the Study Area during targeted surveys between 2022 and 2024 (**Table 7.6**).

Table 7.6: List of bird species recorded during Study Area surveys 2022-2024

Common name	Scientific name
Red-throated diver	*Gavia stellata*
Great northern diver	*Gavia immer*
Great crested grebe	*Podiceps cristatus*
Fulmar	*Fulmarus glacialis*
Cormorant	*Phalocrocorax carbo*
Grey heron	*Ardea cinerea*
Mute swan	*Cygnus olor*

Table 7.6: List of bird species recorded during Study Area surveys 2022-2024	
Common name	**Scientific name**
Whooper swan	*Cygnus cygnus*
Greylag goose	*Anser anser*
Barnacle goose	*Branta leucopsis*
Mallard	*Anas platyrhynchos*
Wigeon	*Anas penelope*
Teal	*Anas crecca*
Tufted duck	*Aythya fuligula*
Eider	*Somateria mollissima*
Goldeneye	*Bucephala clangula*
Red-breasted merganser	*Mergus serrator*
White-tailed eagle	*Haliaeetus albicilla*
Osprey	*Pandion haliaetus*
Hen harrier	*Circus cyaneus*
Sparrowhawk	*Accipiter nisus*
Merlin	*Falco columbarius*
Red grouse	*Lagopus lagopus scoticus*
Oystercatcher	*Haematopus ostralegus*
Ringed plover	*Charadrius hiaticula*
Golden plover	*Pluvialis apricaria*
Lapwing	*Vanellus vanellus*
Turnstone	*Arenaria interpres*
Dunlin	*Calidris alpina*
Common sandpiper	*Actitis hypoleucos*
Greater yellowlegs	*Tringa melanoleuca*
Redshank	*Tringa totanus*
Curlew	*Numenius arquata*
Whimbrel	*Numenius phaeopus*
Woodcock	*Scolopax rusticola*
Snipe	*Gallinago gallinago*
Jack snipe	*Lymnocryptes minimus*
Great skua	*Stercorarius skua*
Arctic skua	*Stercorarius parasiticus*
Black-headed gull	*Larus ridibundus*
Common gull	*Larus canus*
Herring gull	*Larus argentatus*
Lesser black-backed gull	*Larus fuscus*
Great black-backed gull	*Larus marinus*
Common tern	*Sterna hirundo*
Arctic tern	*Sterna paradisaea*

Table 7.6: List of bird species recorded during Study Area surveys 2022-2024	
Common name	**Scientific name**
Short-eared owl	*Asio flammeus*
Swallow	*Hirdundo rustica*
Skylark	*Alauda arvensis*
Meadow pipit	*Anthus pratensis*
Pied wagtail	*Motacilla alba*
Carrion crow	*Corvus corone corone*
Hooded crow	*Corvus corone cornix*
Raven	*Corvus corax*
Wren	*Troglodytes troglodytes*
Starling	*Sturnus vulgaris*
Wheatear	*Oenanthe oenanthe*

7.4.2 Of the 57 bird species recorded during surveys between 2022 and 2024, evidence of regular flight activity and/or breeding of fifteen potentially important species occurred within the Study Area, and these species are taken forward for further consideration and assessment (**Table 7.7**). For the avoidance of doubt, where potentially important species were recorded once or only very occasionally during two years of monitoring e.g. hen harrier, osprey, short-eared owl and white-tailed eagle they were not taken forward for further consideration and assessment.

7.4.3 Potentially important receptors are those target species recorded during surveys that have been identified by previous studies and NatureScot guidance as potentially likely to be affected by wind farms. NatureScot[16] guidance makes it clear that that wider countryside bird species on Annex 1 of the EC Birds Directive, Schedule 1 of the UK Wildlife and Countryside Act 1981 (as amended), qualifying species of designated sites and UK Red-listed Birds of Conservation Concern should be the focus of the subsequent assessment. More common bird species, not on these three lists, can typically be dropped from further consideration during assessment and effort focussed on important ornithological receptors instead. However, contrary to the earlier NatureScot guidance at the time surveys commenced, breeding gulls and gull flightlines were recorded during surveys in 2022-2024 as potential target species. The latest NatureScot survey guidance[17] states that "*Given the significant decline in gull populations in Scotland, all gull species should now also be considered as target species*".

Table 7.7: Conservation Listing of Potentially Important Ornithological Receptors	
Species	**Conservation Listing**
Red-throated diver	S1, A1
Golden plover	A1
Ringed plover	Red L
Dunlin	A1 (*schinz*)

[16] NatureScot (2025). Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas.

[17] NatureScot (2025). Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas.

Table 7.7: Conservation Listing of Potentially Important Ornithological Receptors	
Species	**Conservation Listing**
Lapwing	Red L
Redshank	-
Whimbrel	S1, Red L
Curlew	Red L
Merlin	A1, S1, Red L
Common gull	Red L
Herring gull	Red L
Great black-backed gull	Red L
Arctic tern	Red L
Arctic skua	Red L
Great skua	Red L
Key: A1 = EC Birds Directive Annex 1 species; S1 = UK Wildlife and Countryside Act Schedule 1 species; Red L = UK Birds of Conservation Concern 5 Red List species (inc. 2024 addendum)	

7.4.4 Geographical population estimates for the fifteen potentially important ornithological receptors within the Study Area are provided in **Table 7.8**.

Table 7.8: – Geographical Population Estimates for Potentially Important Ornithological Receptors (breeding pairs unless otherwise stated; AON = Apparently Occupied Nests; AOT = Apparently Occupied Territories)				
Species	**Shetland (Regional)**	**Scotland**	**UK (National)**	**Europe (International)**
Red-throated diver	407*	1,250*	1,250*	42,100-93,000
Golden plover	5,665*	15,000**	32,500-50,500*	630,000-860,000
Ringed plover	**800-1,000****	**4,900-6,700****	**5,450***	**140,000-213,000**
Dunlin	2,054*	8,000-10,000**	8,600-10,500*	426,000-562,000
Lapwing	1,740*	71,500-105,600**	97,500*	1,590,000-2,580,000
Redshank	**1,037-2,288****	**11,700-17,500****	**22,000***	**740,000-1,200,000**
Whimbrel	364*****	378****	310*	343,000-402,000
Curlew	4,227*	58,800**	58,500*	212,000-292,000
Merlin	35***	800**	1,150*	20,000-41,700
Common gull	**1,650 AON******	**22,755 AON*****	**23,540 AON****	**640,000-1,080,000**
Herring gull	**1,875 AON****** **(natural nest sites only)**	**100,161 AON*****	**237,573 AON****	**531,000-608,000**
Great black-backed gull	1,201 AON****	5,404 AON***	8,021 AON**	79,000-119,000
Arctic tern	7,164 AON****	19,555 AON***	30,451 AON**	564,000-906,000
Arctic skua	**295 AOT******	**727 AOT*****	**727 AOT****	**39,900-56,200**
Great skua	7,692 AOT****	10,937 AOT***	10,937 AOT**	16,300-17,200

Table 7.8: – Geographical Population Estimates for Potentially Important Ornithological Receptors (breeding pairs unless otherwise stated; AON = Apparently Occupied Nests; AOT = Apparently Occupied Territories)

Species	Shetland (Regional)	Scotland	UK (National)	Europe (International)
Population estimate reference	*Wilson *et al*. ibid; **Pennington *et al*., 2004[18]; ***Shetland Bird Club[19]; ****Burnell *et al*., 2023[20]; *****Eaton *et al*., 2023[21]	*Woodward *et al*., 2020[22]; **Forester and Andrews (eds) 2007[23]; ***Burnell *et al*., ibid; ****Eaton *et al*., ibid	*Woodward *et al*., ibid; **Burnell *et al*., ibid	BirdLife[24]

7.4.5 The behavioural sensitivity of the potentially important ornithological receptors is considered using criteria set out in **Technical Appendix 7.5: Ornithology Methodology (EIAR Volume 4)**. Two potentially important species were judged to have high behavioural sensitivity, seven to have moderate behavioural sensitivity and six to have low behavioural sensitivity. When available, the assumed distance thresholds and hence sensitivity for disturbance in **Table 7.9** is predominantly based on expert opinion examined by Ruddock and Whitfield[25], Gilbert *et al.*,[26] and direct field experience. The assessment of behavioural sensitivity is primarily based on disturbance to breeding birds at the nest, not general disturbance of birds undertaking other activities.

Table 7.9: Behavioural Sensitivity of Potentially Important Ornithological Receptors

Species	Nature of Sensitivity	Sensitivity Level
Red-throated diver	Potentially vulnerable to collision with turbines when making flights between the nesting waterbody and sea. Breeding birds are sensitive to human activity, visual disturbance and sudden noise events over large distances (up to 500 m). However, evidence from the Shetland Viking Wind Farm studies indicates that some individuals (perhaps habituated) appear to tolerate moderate levels of disturbance in some situations. The size of waterbodies and line-of-sight also have an impact; breeding birds are more easily disturbed and fly from small nesting lochans (where they presumably feel more vulnerable) than	High

[18] Pennington, M., Osborn, K., Harvey, P., Riddington, R., Okill, D., Elllis, P. and Heubeck, M. 2004.The Birds of Shetland. Helm, London.

[19] Shetland Bird Club. 2024. Shetland Bird Club Report for 2022.

[20] Burnell, D., Perkins, A., Newton, S., Bolton, M., Tierney, D. and Dunn, T. 2023. Seabirds Count: A census of breeding seabirds in Britain and Ireland (2015-2021). Lynx Nature Books.

[21] Eaton, M. and the Rare Breeding Birds Panel. 2023. Rare breeding birds in the UK in 2021. British Birds 116: 615-676.

[22] Woodwood, I., Aebischer, N., Burnell, D., Eaton, M., Frost, T., Hall, C., Stroud, D. and Noble, D. 2020. Population estimates of birds in Great Britain and the United Kingdom. British Birds 113: 69-104.

[23] Forrester, R. and Andrews, I. (eds). 2007. The Birds of Scotland. The Scottish Ornithologists' Club (SOC), Aberlady.

[24] Bird Life Data Zone: BirdLife DataZone | BirdLife DataZone. [Accessed February 2026]

[25] Ruddock, M. and Whitfield, P. (2007; and 2022 update). A review of disturbance distances in selected bird species. A report from Natural Research (Projects) Ltd to SNH.

[26] Gilbert, G., Gibbons, D.W. and Evans, J. (1998). Bird Monitoring Methods: a manual of techniques for key UK species. RSPB, Sandy.

Table 7.9: Behavioural Sensitivity of Potentially Important Ornithological Receptors		
Species	**Nature of Sensitivity**	**Sensitivity Level**
	large lochs, where they have the ability to dive and swim away, without taking flight.	
Golden plover	Potentially vulnerable to collision with turbines when displaying, mobbing avian intruders and commuting between breeding and feeding areas. Species' behaviour of flying low and having relatively small territories makes them less vulnerable to collision than high flying waders with large territories. Breeding birds are sensitive to human activity, visual disturbance and sudden noise events over moderate distances (~250 m). Yalden and Yalden[27] reported that adults with chicks alarm-called when approached within c. 200 m.	Moderate
Ringed plover	Breeding ringed plovers have relatively small territories and regularly select to nest on man-made habitats in Shetland, such as road verges and quarries and so is not considered particularly susceptible or sensitive to human disturbance.	Low
Dunlin	Breeding dunlin have very small territories, are sensitive to human activity, visual disturbance and sudden noise events over moderate distances (~250 m).	Moderate
Lapwing	Potentially vulnerable to collision with turbines when displaying, mobbing avian intruders and commuting between breeding and feeding areas. Species' behaviour of generally flying low and having relatively small territories makes them less vulnerable to collision than high flying waders with large territories. This species typically nests within or close to in-bye fields and so is used to the daily presence of crofters and sheep.	Low
Redshank	Breeding birds are usually not considered particularly sensitive to human activity, visual disturbance and sudden noise events. In Shetland redshank often nest and feed close to or on in-bye fields, which are regularly used by crofters and sheep.	Low
Whimbrel	Breeding birds are usually considered sensitive to human activity, visual disturbance and sudden noise events. However, in Shetland whimbrel nest in short, grazed vegetation, periodically visited by crofters[28]. Adult whimbrel on their breeding territories show disturbance responses to the presence of a moving or static person up to 250 m away.	Moderate
Curlew	Potentially vulnerable to collision with turbines when displaying, mobbing avian intruders and commuting between breeding and feeding areas. Large size, big territories and species' behaviour of generally flying at low, medium and high heights makes them vulnerable to collision. Breeding birds are usually considered sensitive to human activity, visual disturbance and sudden noise events over moderate distances (~250 m). However, in Shetland curlews often nest and feed close to or on in-bye fields, which are regularly used by crofters and sheep.	Moderate
Merlin	Potentially vulnerable to collision with turbines when displaying, mobbing avian intruders and hunting. Breeding merlin are particularly sensitive to human activity, visual disturbance and sudden noise events over large distances (up to 500 m). However, some individual merlins appear to tolerate moderate levels of disturbance in some situations. For example, some merlins appear to be able to nest relatively close to public roads, where regular disturbance occurs, including on Shetland.	High

[27] Yalden, P.E. and Yalden, D.W. 1990. Recreational disturbance of breeding Golden Plovers *Pluvialis apricaria*. Biological Conservation. 51: 243– 262.

[28] Massey, K., Cosgrove, P., Massey, F., Jackson, D. and Chapman, M. 2016. Habitat characteristics of breeding Eurasian Whimbrel *Numenius phaeopus* on Mainland Shetland, Scotland, UK. Bird Study 63: 500-508.

Table 7.9: Behavioural Sensitivity of Potentially Important Ornithological Receptors		
Species	**Nature of Sensitivity**	**Sensitivity Level**
Common gull	Potentially vulnerable to collision with turbines when displaying, mobbing avian intruders and commuting between breeding and feeding areas.	Low
Herring gull	Potentially vulnerable to collision with turbines when displaying, mobbing avian intruders and commuting between breeding and feeding areas.	Low
Great black-backed gull	Potentially vulnerable to collision with turbines when displaying, mobbing avian intruders and commuting between breeding and feeding areas.	Low
Arctic tern	Scottish Government advice (2012[29]) on disturbance by wind farm structures, ship and helicopter traffic conducted a literature search focused on disturbance sensitivity of seabirds, and allocated scores by experts on sensitivity. Arctic tern scored 2. Tern colonies are considered moderately sensitive; with total colony abandonment possible under some (poorly understood) circumstances.	Moderate
Arctic skua	Potentially vulnerable to collision with turbines when displaying, mobbing avian intruders and commuting between breeding and feeding areas. However, species' behaviour of flying low and having relatively small nesting territories (often within discrete colonies) makes them less vulnerable to collision than would otherwise be the case. Nevertheless, adults hunt low over moorland habitats, covering large areas. Care should be taken around nesting skuas, especially not to flush young skuas which are vulnerable to predation by neighbouring adult skuas.	Moderate
Great skua	Potentially vulnerable to collision with turbines when displaying, mobbing avian intruders and commuting between breeding and feeding areas. The species' behaviour of flying high over nesting territories (often within discrete colonies) makes them more vulnerable to collision than would otherwise be the case. Great skuas show individual variation in feeding behaviour and major differences in behaviour as breeders, failed breeders and immatures, so that individual exposure to disturbance and collision risk is likely to vary considerably between individuals. Care should be taken around nesting skuas, especially not to flush young skuas which are vulnerable to predation by neighbouring adult skuas.	Moderate

Red-throated diver

7.4.6 Red-throated divers are usually present on their breeding grounds in Shetland between April and August, after which time they move to the sea for the winter[30]. Occasionally late breeding pairs have been recorded feeding chicks on lochans in September. Freshwater bodies (lochs and lochans) on Shetland are used for red-throated diver nesting and chick-rearing. Some breeding and non-breeding adults also use a nearby 'satellite' loch for loafing, washing, apparent social interactions and resting in between bouts of foraging at sea or incubation. Red-throated divers struggle to walk on land and so almost all breed within 1 m of the bank edge of lochs and lochans with suitable water levels, which allow the birds to shuffle on and off the nest directly into water. Unusually within the suite of target species breeding within the Study Area, this makes their specific breeding locations relatively predictable.

[29] The Scottish Government (2012). *Vulnerability Of Scottish Seabirds To Offshore Wind. 3.5 Disturbance by wind farm structures, ship and helicopter traffic (Factor 5).*

[30] Pennington, M., Osborn, K., Harvey, P., Riddington, R., Okill, D., Elllis, P. and Heubeck, M. 2004.The Birds of Shetland. Helm, London.

7.4.7 Further details are provided in **Technical Appendix 7.3: Confidential Information (EIAR Volume 5)**.

Golden plover

7.4.8 Golden plovers are mostly present on their breeding grounds in Shetland between March and August, after which time most move to the coast and in-bye croftland[31]. In Shetland golden plovers principally nest on blanket bog and moorland, and locally on serpentine heath on Unst and Fetlar. Although they often feed on areas of improved grassland, they do not breed in this habitat.

7.4.9 Golden plovers were recorded breeding within the Study Area. Across the years surveyed, up to five pairs of golden plovers (five pairs in 2022 and five pairs in 2023) attempted breeding within the Study Area (**Figure 7.5: Golden Plover Territory Centres 2022-2023 (EIAR Volume 3a)**). Five pairs of golden plover represents approximately 0.09 % of the Shetland Natural Heritage Zone (NHZ) population within the Study Area. The Shetland NHZ population estimate is 5,665 pairs (**Table 7.8**).

Ringed plover

7.4.10 Ringed plover is a largely coastal wader species, nesting on or above the strandline on open sand and shingle beaches, but can also use sand dunes, grass hinterlands, rocky headlands, maritime heath, small storm beaches and artificial habitats[32]. One pair of ringed plovers held territory on the beach north of Sullom Voe, just outside the Site in 2023 (**Figure 7.6: Ringed Plover Territory Centres 2022-2023 (EIAR Volume 3a)**); none were recorded in 2022. One pair of ringed plover represents approximately 0.1-0.13 % of the Shetland NHZ population within the Study Area. The Shetland NHZ population estimate is 800-1,000 pairs (**Table 7.8**).

Dunlin

7.4.11 Dunlin breeds on wet upland and montane heath, especially where bog pool systems occur, but also on machair and rarely on salt marsh[33]. Dunlin were recorded breeding within the Study Area. Across the years surveyed, up to six pairs of dunlin (six in 2022 and six in 2023) attempted breeding within the Study Area (**Figure 7.7: Dunlin Territory Centres 2022-2023 (EIAR Volume 3a)**). Six pairs of dunlin represents approximately 0.3 % of the Shetland NHZ population within the Study Area. The Shetland NHZ population estimate is 2,054 pairs (**Table 7.8**).

Lapwing

7.4.12 Lapwings are mostly present on their breeding grounds in Shetland between April and August, after which time they move to agricultural fields and the coast[34]. Lapwings were recorded breeding within the Study Area. Across the years surveyed, up to five pairs of lapwings (five pairs in 2022 and five pairs in 2023) attempted breeding within the Study Area (**Figure 7.8: Lapwing Territory Centres 2022-2023 (EIAR Volume 3a)**). Five pairs of lapwings

[31] Pennington, M., Osborn, K., Harvey, P., Riddington, R., Okill, D., Elllis, P. and Heubeck, M. 2004.The Birds of Shetland. Helm, London.

[32] Forrester, R. and Andrews, I. (eds). 2007. The Birds of Scotland. The Scottish Ornithologists' Club (SOC), Aberlady.

[33] Forrester, R. and Andrews, I. (eds). 2007. The Birds of Scotland. The Scottish Ornithologists' Club (SOC), Aberlady.

[34] Pennington, M., Osborn, K., Harvey, P., Riddington, R., Okill, D., Elllis, P. and Heubeck, M. 2004.The Birds of Shetland. Helm, London.

represents approximately 0.3 % of the Shetland NHZ population within the Study Area. The Shetland NHZ population estimate is 1,740 pairs (**Table 7.8**).

Redshank

7.4.13 Redshanks are present on their breeding grounds in Shetland from mid-March[35]. Many breed in the margins of moorland, in mires with long vegetation, or in wet in-bye fields with sufficient rushes to provide cover for chicks. Redshanks were recorded breeding within the Study Area. Across the years surveyed, up to six pairs of redshank (six pairs in 2022 and six pairs in 2023) attempted breeding within the Study Area (**Figure 7.9: Redshank Territory Centres 2022-2023 (EIAR Volume 3a)**). Six pairs of redshank represents approximately 0.26-0.58 % of the Shetland NHZ population within the Study Area. The Shetland NHZ population estimate is 1,037-2,288 pairs (**Table 7.8**).

Whimbrel

7.4.14 Whimbrel are present on their breeding grounds in Shetland between the last week of April and the end of July. Within Shetland, whimbrel breed in short vegetation on wet heath, blanket bog and serpentine heath[36,37]. Unlike curlew, there is no evidence that whimbrel move far from their nests with chicks[38].

7.4.15 Further details in **Technical Appendix 7.3: Confidential Information (EIAR Volume 5)**.

Curlew

7.4.16 Curlews are mostly present on their breeding grounds in Shetland between mid-March and August, after which time they move to the coast and in-bye croftland. In Shetland curlews principally nest on moorland, especially moorland edges where rushes provide nesting cover. Some breed on meadows, damp grassland and low-lying mires[39].

7.4.17 Curlews were recorded breeding within the Study Area. There was a lot of curlew activity recorded, and breeding curlews can move considerable distances, so it is difficult (particularly in an unmarked population) to be certain of the number of pairs and some of the notional territory centres might better reflect movements to a favoured area from a nearby pair because they can have large and complex territories. Another meaningful way of looking at the (maximum) eighteen notional curlew territories in 2022 would be to consider them as areas of high curlew activity. In 2023 a maximum of fifteen notional curlew territories were recorded (**Figure 7.11: Curlew Territory Centres 2022-2023 (EIAR Volume 3a)**). A maximum of eighteen pairs of curlew represents approximately 0.43 % of the Shetland NHZ population within the Study Area. The Shetland NHZ population estimate is 4,227 pairs (**Table 7.8**).

[35] Pennington, M., Osborn, K., Harvey, P., Riddington, R., Okill, D., Elllis, P. and Heubeck, M. 2004.The Birds of Shetland. Helm, London.

[36] Grant, M.C. 1991. Nesting densities, productivity and survival of breeding Whimbrel *Numenius phaeopus* in Shetland. Bird Study 38: 160–169.

[37] Massey, K., Cosgrove, P., Massey, F., Jackson, D. and Chapman, M. 2016. Habitat characteristics of breeding Eurasian Whimbrel *Numenius phaeopus* on Mainland Shetland, Scotland, UK. Bird Study 63: 500-508.

[38] Grant, M.C., Chambers, R. and Evans, P.R. 1992. The effects of re-seeding heathland on breeding Whimbrel *Numenius phaeopus* in Shetland. III. Habitat use by broods. J. Appl. Ecol. 29: 516–523.

[39] Pennington, M., Osborn, K., Harvey, P., Riddington, R., Okill, D., Elllis, P. and Heubeck, M. 2004.The Birds of Shetland. Helm, London.

Merlin

7.4.18 Merlin are usually present on breeding territories in Shetland between early April and September[40], after which they migrate to winter in lowland and coastal areas and regularly away from Shetland. In the autumn/winter Icelandic merlins occur across Shetland. No pairs of merlin were located nesting within the Study Area during any of the breeding season surveys. Occasional merlin flightlines were recorded during VP watches.

Common gull

7.4.19 Common gulls are present all year round in Shetland and return to breeding areas in April. Colonies may be found around pools and mires, or dry rocky hillsides or flat areas along the coast[41]. There were three small common gull colonies within the Study Area (**Table 7.10; Figure 7.12: Common Gull Colonies 2022-2023 (EIAR Volume 3a)**). Breeding attempts (defined as Apparently Occupied Nests (AON)) was highly variable between years, suggesting mixing between colonies (the annual range is provided in **Table 7.10**).

Table 7.10: Breeding common gull colonies within the Study Area.

Location	Number of Apparently Occupied Nests (AON)
Colony A @ HU 418 768	10-25 AON
Colony B @ HU 433 741	5-15 AON
Colony C @ HU 428 738	5-15 AON

7.4.20 The total of 20-55 common gull AON represents approximately 1.2-3.3 % of the Shetland NHZ population within the Study Area. The Shetland NHZ population estimate is 1,650 AON (**Table 7.8**).

Herring gull

7.4.21 Herring gulls are present all year round in Shetland with many migratory Scandinavian birds arriving in the winter[42,43]. No pairs of herring gulls were recorded as either nesting or holding territory within the Study Area in any of the years surveyed. Nevertheless, there were a large number of herring gull flightlines recorded during VP watches in both years (**Technical Appendix 7.2: Collision Risk Assessment (EIAR Volume 4)**). Despite being a common and widespread species herring gull is considered further within this assessment following its recent upgrade to the UK Red-List and NatureScot advice[44]. The Shetland NHZ population estimate is 1,875 breeding pairs (AON) in natural nest sites (**Table 7.8**). There is no equivalent population estimate available for urban/roof nesting herring gulls in Shetland, so the metric of 1,875 AON is likely to be an under-estimate of actual numbers present, recognising that there is further uncertainty following the H5N1 bird flu outbreak.

[40] Pennington, M., Osborn, K., Harvey, P., Riddington, R., Okill, D., Elllis, P. and Heubeck, M. 2004.The Birds of Shetland. Helm, London.

[41] Pennington, M., Osborn, K., Harvey, P., Riddington, R., Okill, D., Elllis, P. and Heubeck, M. 2004.The Birds of Shetland. Helm, London.

[42] Pennington, M., Osborn, K., Harvey, P., Riddington, R., Okill, D., Elllis, P. and Heubeck, M. 2004.The Birds of Shetland. Helm, London.

[43] Forrester, R. and Andrews, I. (eds). 2007. The Birds of Scotland. The Scottish Ornithologists' Club (SOC), Aberlady.

[44] NatureScot (2025). Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas.

Great black-backed gull

7.4.22 Great black-backed gulls are present all year round with many migratory Scandinavian birds arriving in the winter[45,46]. Up to four breeding pairs (two pairs in 2022; four pairs in 2023) bred within the Study Area (**Figure 7.13: Great Black-backed Gull Apparently Occupied Territories 2022-2023 (EIAR Volume 3a)**). The exact breeding areas appeared to move from year to year, but at least two pairs were within the Application Boundary annually. There was also a regular large roost on a headland on Neshion Water (up to 60 birds). There were a large number of great black-backed gull flightlines recorded during VP watches in both years (**Technical Appendix 7.2: Collision Risk Assessment (EIAR Volume 4)**). Despite being a common and widespread species great black-backed gull is considered further within this assessment following its recent upgrade to the UK Red-List and NatureScot advice[47]. The Shetland NHZ population estimate is 1,201 breeding pairs (AON) (**Table 7.8**), recognising that there is uncertainty in this estimate following the H5N1 bird flu outbreak. Up to three breeding pairs represents 0.33 % of the Shetland NHZ population within the Study Area.

Arctic tern

7.4.23 Arctic terns are usually present at their colonies in Shetland between May and August, after which they migrate offshore to Africa and down to Antarctica. They typically nest in short vegetation or open areas on rough grazings, very close to the sea[48]. No pairs of Arctic terns were recorded breeding within the Study Area in either year surveyed. Nevertheless, Arctic terns regularly flew across the south part of the Study Area, between Tofts Voe/Firths Voe and Garths Voe, in south west/west direction in 2022 (along an apparent flight corridor), where they were observed washing in the freshwater at the mouth of the Burn of Laxobigging, near Graven. A single flightline was recorded once within the Turbine Area (not illustrated). The southern flight corridor was apparently not used in 2023 (possibly as a consequence of mortality associated with the H5N1 bird flu outbreak). The Shetland NHZ population estimate is 7,164 pairs (**Table 7.8**), recognising that there is uncertainty in this estimate following the H5N1 bird flu outbreak.

Arctic skua

7.4.24 Arctic skuas are usually present on breeding territories in Shetland between May and August, after which they migrate offshore to Africa[49]. Arctic skuas were recorded breeding within the Study Area during surveys in all years. Across the years surveyed, up to three pairs of Arctic skuas (three Apparently Occupied Territories (AOT) in 2022 and three AOT in 2023) within the Study Area (**Figure 7.14: Arctic Skua Apparently Occupied Territories 2022-2023 (EIAR Volume 3a)**). Some Arctic skua flightlines were recorded during VP watches in both years (**Technical Appendix 7.2: Collision Risk Assessment (EIAR Volume 4)**). Three pairs of Arctic skuas represents approximately 1.02 % of the Shetland NHZ population within

[45] Pennington, M., Osborn, K., Harvey, P., Riddington, R., Okill, D., Elllis, P. and Heubeck, M. 2004.The Birds of Shetland. Helm, London.

[46] Forrester, R. and Andrews, I. (eds). 2007. The Birds of Scotland. The Scottish Ornithologists' Club (SOC), Aberlady.

[47] NatureScot (2025). Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas.

[48] Pennington, M., Osborn, K., Harvey, P., Riddington, R., Okill, D., Elllis, P. and Heubeck, M. 2004.The Birds of Shetland. Helm, London.

[49] Pennington, M., Osborn, K., Harvey, P., Riddington, R., Okill, D., Elllis, P. and Heubeck, M. 2004.The Birds of Shetland. Helm, London.

the Study Area. The Shetland NHZ population estimate is 295 pairs (**Table 7.8**). During updated checks for target Schedule 1 breeding species in 2024 an additional (new) Arctic skua pair was recorded south/south west of Loch Mioness (outside of the Application Boundary).

Great skua

7.4.25 Great skuas are usually present on breeding territories in Shetland between April and September, after which they migrate offshore to Africa[50]. There was no evidence of any territories occupied within the Study Area in 2022 or 2023. Nevertheless, there were some great skua flightlines recorded during VP watches in both years (**Technical Appendix 7.2: Collision Risk Assessment (EIAR Volume 4)**). Shetland NHZ population estimate is 7,692 pairs (**Table 7.8**), recognising that there is uncertainty in this estimate following the H5N1 bird flu outbreak i.e. the actual population is likely to be considerably lower than published estimates suggest because this species was particularly badly affected.

Future Baseline

7.4.26 In the absence of the Proposed Development (the 'do nothing' scenario), the Study Area is likely to remain characterised by blanket bog and dry modified bog habitats, the condition of which is currently highly variable. Sheep grazing is likely to continue and so would further degrade the bog habitats present and associated bird populations accordingly. Further details on the condition of habitats is provided in **Chapter 6: Ecology (EIAR Volume 2)**.

Summary of Receptors Brought Forward for Assessment

7.4.27 Of the 57 bird species recorded in the Study Area during targeted ornithological surveys between 2022-2024, fifteen species have been brought forward for assessment: red-throated diver, golden plover, ringed plover, dunlin, lapwing, redshank, whimbrel, curlew, merlin, common gull, herring gull, great black-backed gull, Arctic tern, Arctic skua and great skua.

7.5 Mitigation

7.5.1 Embedded (primary) mitigation is an inherent part of the project design and comprises measures that have influenced the location and design of the Proposed Development. Embedded mitigation would be secured through the description of the Proposed Development as part of planning consent and is described in the design evolution narrative (refer to **Chapter 3: Design Evolution (EIAR Volume 2)**). Standard (tertiary) mitigation comprises measures that are mandated by legislative requirements or standard best practices and would be required regardless of the outcomes of any EIA – for example pre-construction and construction breeding season monitoring would be undertaken so that potential damage to any nest is avoided, as per the Wildlife and Countryside Act 1981 (as amended) requirements.

7.5.2 As the embedded and standard mitigation would form part of the Proposed Development, there would be no consented scenario where the mitigation measures would not be implemented. As such, and in accordance with best practice e.g. NPF4, the assessment of likely significant effects assumes that these mitigation measures are implemented.

Embedded mitigation

7.5.3 The embedded mitigation measures of relevance to ornithology include:

[50] Pennington, M., Osborn, K., Harvey, P., Riddington, R., Okill, D., Elllis, P. and Heubeck, M. 2004.The Birds of Shetland. Helm, London.

- The ornithological sensitivities identified in the southern extent of the Study Area resulted in a 'no turbine development zone' being defined south of the Crooksetter Hill. By defining a 'no turbine development zone' within the initial Scoping stage, the following ornithological constraints identified during targeted 2022-2024 surveys would be avoided:
  - Further details of Schedule 1 species mitigations in **Technical Appendix 7.3: Confidential Information (EIAR Volume 5)**;
  - Ten of the eighteen curlew breeding pairs (based on highest total in 2022) would be avoided;
  - The apparent Arctic tern southern flight corridor would be avoided should populations recover and reuse it; and
  - One Arctic skua breeding pair (based on both 2022 and 2023) would be avoided.
- No Proposed Development work would take place within any adjacent statutory designated sites with ornithological features.
- The OBEHMP measures would deliver substantial quantities of habitat bog restoration which should directly benefit breeding red-throated diver, golden plover, dunlin, whimbrel and Arctic skua. The planned OBEHMP reduction and removal of sheep grazing is also likely to benefit existing habitats for the same suite of blanket bog species.
- The Turbine Area has been deliberately selected to avoid breeding red-throated diver flight corridors (as determined by targeted focal-watch surveys; **Figure 7.15: Focal Watch Flightlines of Breeding Red-Throated Divers 2022-2023 – Confidential (EIAR Volume 5)**).

7.5.4 Following the Scoping stage, further ornithological information was gathered and led to the development of an amended layout (Layout 2: Design Chill Layout). The following turbine movements were made in relation to ornithological constraints:

- Further details in **Technical Appendix 7.3: Confidential Information (EIAR Volume 5)**.
- Turbine 10 was removed to reduce impact on breeding curlew.
- The BESS and substation search area positioned to the west of the Site to avoid key ornithological interests.

7.5.5 Further details in **Technical Appendix 7.3: Confidential Information (EIAR Volume 5)**.

Standard mitigation

7.5.6 A summary of the standard mitigation considered for the Ornithology assessment is set out in **Table 7.11**.

Table 7.11: Summary of Standard Mitigation

Reference	Phase*	Description	Purpose of Mitigation
OR01	C	Breeding Bird Protection Plan	To avoid damage and destruction of nests and to comply with the Wildlife and Countryside Act (1981, as amended).
OR02	C	Construction Environmental Management Plan	To avoid sensitive habitats and protected species features.
OR03	C	Pollution Prevention Plan	To avoid pollution to watercourses and waterbodies that may be used by birds and other protected species.

Table 7.11: Summary of Standard Mitigation			
Reference	**Phase***	**Description**	**Purpose of Mitigation**
EC05	C	An ECOW would be present during construction of the Proposed Development during construction work.	To implement mitigation measures, ensuring avoidance and minimisation of impacts on ecological features such habitats, birds and other protected species.

*C=construction, O=operation and maintenance.

7.6 Assessment of Likely Effects

Designated sites

7.6.1 This section describes the predicted effects on ornithological qualifying features of designated sites that could arise from the construction and operation of the Proposed Development. There are five statutory designated sites with ornithological features within 10 km of the Proposed Development, as identified in (**Table 7.4**; **Figure 7.3: Statutory Designated Sites within 10 km with Ornithological Features (EIAR Volume 3a)**). The closest and most relevant designated site to the Proposed Development is the East Mainland Coast, Shetland SPA.

7.6.2 When assessing potential impacts on designated sites it is important to consider whether the Proposed Development would likely undermine the conservation objectives of the site, the condition of the site, or the conservation status of the species or habitats for which the site is designated. Consideration should also be given to whether any process or key characteristic would be removed or changed, whether there would be an effect on the nature, extent, structure and function of component habitats and if there is an effect on the average population size and viability of species[51].

7.6.3 NatureScot provides guidance on assessing 'connectivity' between development proposals and SPA[52] (note that no such advice is provided for 'connectivity' to other statutory designated sites, but NatureScot note that '*the basic approach is also applicable to SSSIs*'). The first stage of the NatureScot guidance "*acts as a screening stage, removing from Habitats Regulations Appraisal plans/projects which clearly have no connectivity to a site's qualifying interests or those where it is very obvious that the conservation objectives for the site's qualifying interests will not be undermined despite a connection*". In doing this the guidance recommends "*To assess whether there are processes or pathways by which the proposal may influence the site's qualifying interests, it is important to consider the distances that some species may travel beyond the boundary of their SPA*". The guidance then provides information on dispersal and foraging distances for a range of SPA bird species which are frequently encountered when considering development plans and projects. "*The connectivity distances of each species are drawn from a literature review that examined ranging behaviour. In most cases the core range should be used when determining whether there is connectivity between the proposal and the qualifying interests*".

East Mainland Coast, Shetland SPA

7.6.4 The East Mainland Coast, Shetland SPA is a very large, designated site (23,333.23 ha) and stretches from Fish Holm and Lunna Ness in the north southwards, encompassing Whalsay,

[51] CIEEM. Guidelines for Ecological Impact Assessment in the UK and Ireland Terrestrial, Freshwater, Coastal and Marine Version 1.3 updated September 2024.

[52] SNH (2026). Assessing Connectivity with Special Protection Areas (SPAs).

to the north coast of Bressay. It lies c. 3.25 km to the south east of the Application Boundary. The qualifying East Mainland Coast, Shetland SPA bird species are wintering great northern diver and wintering Slavonian grebe and "*it also qualifies under Article 4.1 by regularly supporting a population of European importance of red-throated diver during the breeding season. The foraging area is available to 205 pairs of birds breeding on the nearby islands (15.8 % of the GB population in 2006)*"[53]. From the SPA citation it appears that the '205 pairs breeding on the nearby islands' therefore excludes those on Shetland Mainland (and so those breeding within the Study Area); otherwise, they would be mentioned and included.

7.6.5 Of the three East Mainland Coast, Shetland SPA qualifying species, great-northern diver and Slavonian grebe are both marine species (in terms of their use of the SPA) and were not recorded within the Application Boundary and therefore are not considered further.

7.6.6 In the case of the East Mainland Coast, Shetland SPA, there would be no direct or indirect land-take impacts or construction and operational disturbance impacts on the SPA, nor its qualifying breeding red-throated diver feature. Potential impacts on Shetland Mainland breeding red-throated divers, which do not breed within the East Mainland Coast, Shetland SPA, but could in theory use it for foraging, are fully considered under the Wider Countryside Birds red-throated diver section of this assessment (including potential collision risk).

7.6.7 There are no other likely impacts on other statutory designated site qualifying bird species listed in **Table 7.4**. which all lie considerably further away from the Application Boundary than East Mainland Coast, Shetland SPA.

Otterswick and Graveland SPA

This SPA lies within the red-throated diver connectivity (8 km core distance) of the Proposed Development but lies well to the northeast on the island of Yell. The work that Alba Ecology undertook on Yell for the Beaw Field Wind Farm (within a confidential EIAR appendix, which is not publicly available but was issued to NatureScot) demonstrated that breeding red-throated divers from the SPA took direct flights to and from breeding lochans straight to the nearest area of sea, likely in response to threats from predatory skuas. There was no evidence of any diver SPA flights away from Yell across onto Mainland. Furthermore, if the Otterswick and Graveland SPA breeding divers do indeed regularly fly over the Mainland and through the Proposed Development's turbine area, they would then have to fly through the two large adjacent stack flares at SVT which burn 24 hours a day. There is no evidence for this. On this basis, there would be no likely significant effects on the Otterswick and Graveland SPA (nor the Otterswick SSSI) qualifying red-throated diver feature and therefore are not considered further.

Ronas Hill – North Roe and Tingon SPA

This SPA lies approximately 8.5 km north west away from the Proposed Development. Thus, it lies outwith SPA core connectivity distance for red-throated diver. According to NatureScot, as yet, there are no terrestrial connectivity distances for great skua (the other qualifying species). As with the Otterswick and Graveland SPA qualifying features, there is no evidence of flightlines from the Ronas Hill – North Roe and Tingon SPA. On this basis there would be no likely significant effects on the Ronas Hill – North Roe and Tingon SPA qualifying red-throated diver feature and therefore are not considered further.

Bordigarth LNCS

[53] SiteLink - East Mainland Coast, Shetland SPA.

7.6.8 This non-statutory site is designated for breeding Schedule 1 bird species[54], lies in the south of the Study Area and due to the 'no turbine development zone' being defined south of the Crooksetter Hill means no adverse impacts are predicted for this locally designated site. Furthermore, multiple beneficial habitat management actions (**Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**) are targeted within this area to improve the condition of the currently degraded habitats. This work would undoubtedly benefit the qualifying breeding Schedule 1 species of the Bordigarth LNCS.

Wider countryside bird species

Red-throated diver

7.6.9 Red-throated diver is an Annex 1 and Schedule 1 species and therefore of high conservation importance (**Table 7.7**). The regional, national and international population estimates of this species are known (**Table 7.8**). The behavioural sensitivity of the species is considered to be high (**Table 7.9**). Without evidence to the contrary, red-throated diver is likely to be in FCS nationally, within Scotland.

7.6.10 The Shetland NHZ breeding population is estimated to be 407 pairs. The exact number of non-breeding red-throated divers in Shetland is unknown, but these birds are relatively common and widespread. Unpublished diver studies for the Viking Wind Farm in 2005 and 2006 estimated that approximately 35 % (39/111 birds) and 34 % (49/145 birds), respectively were non-breeding. This suggests that slightly over one third of the population present on the Shetland breeding grounds in the summer are likely to be non-breeding individuals. This proportion of non-breeders is similar to the 38 % estimated from the results of the 1994 national survey[55]. Taking the Shetland NHZ breeding red-throated diver population as 407 pairs (814 birds) and assuming a third of birds on the Shetland breeding grounds are non-breeding, provides an estimate of 271 additional non-breeding individuals in the Shetland population. Therefore, for the purpose of this assessment, the Shetland red-throated diver population is estimated to comprise of c. 1,085 individuals.

LAND-TAKE

7.6.11 Further details in **Technical Appendix 7.3: Confidential Information (EIAR Volume 5)**.

CONSTRUCTION/OPERATIONAL DISTURBANCE

7.6.12 Further details in **Technical Appendix 7.3: Confidential Information (EIAR Volume 5)**.

COLLISION

7.6.13 The VP data from all years surveyed showed levels of flight activity sufficient to allow CRM. As discussed, red-throated diver flightlines come from two population cohorts: (i) breeding birds and (ii) non-breeding/sub-adult birds that wander inland around Shetland during the breeding season, presumably investigating potential future breeding sites. Note, there were no diver flightlines recorded during the winter. As potential flight corridors for breeding pairs have been deliberately avoided, any collision risk is likely to impact on non-breeding/sub-adults.

[54] The Schedule 1 species are not listed in the Bordigarth LNCS citation. Nevertheless, two Schedule 1 breeding species are known to breed there, and both are detailed in **Technical Appendix 7.3. Confidential Information (EIAR Volume 5)**.

[55] Gibbons, D., Bainbridge, I., Mudge, G., Tharme, A. and Ellis, P. 1997. The status and distribution of the red-throated diver *Gavia stellata* in Britian in 1994. Bird Study: 44: 194-205.

7.6.14 At a 99.5 % avoidance rate, the estimated collision rate was 0.06 collisions per year, equivalent to one bird strike every 16.7 years (**Technical Appendix 7.2: Collision Risk Assessment (EIAR Volume 4)**). The associated uncertainty ranged from 0 to 0.29 collisions per year (from zero to one bird strike every 3.4 years), reflecting a 95 % confidence interval with an uncertainty range of 387 % (truncated at zero to maintain biological realism). The estimated collision risk (excluding avoidance assumptions) exhibited a very large uncertainty range of 387 %. This large spread of values primarily stems from the diversity of areal flight density estimates presented in **Technical Appendix 7.2: Collision Risk Assessment (EIAR Volume 4)**, which result from real heterogeneity in red-throated diver flight activity, such as many true absences, rather than from measurement errors or insufficient sampling.

7.6.15 Therefore, over the life-time of the Proposed Development, c. 2-3 (non-breeding) red-throated divers are predicted to be killed by collision with turbines. Given these considerations, collision impacts would be likely to have a negligible, permanent adverse impact on the Shetland red-throated diver NHZ population of 1,085 individuals.

SUMMARY OF LIKELY EFFECTS ON RED-THROATED DIVER

7.6.16 It is considered that the overall magnitude of the impacts on red-throated divers due to the construction and operational activities of the Proposed Development are likely to be negligible. The only adverse impacts are likely to relate to predicted CRM losses of 2-3 individual (non-breeding) red-throated divers during the lifetime of the Proposed Development. All other potential impacts have been, and would be, avoided through standard mitigation e.g. by only undertaking certain sections of construction work near occupied diver lochans outwith the breeding season and/or by the use of screes/bunds. Regular, targeted and licensed breeding season checks would be undertaken on all potentially suitable breeding lochs/lochans throughout construction to ensure that proposed mitigation measures are up to date and fit for purpose.

7.6.17 Using the Shetland NHZ metric of 407 pairs, plus an assumed number of non-breeding individuals, it is possible to predict the impact of the Proposed Development on the regional NHZ population (which is considered to be c. 1,085 individuals). CRM predicts the death of 2-3 red-throated divers (likely non-breeding/sub-adults) over the 40-year lifetime of the Proposed Development. Therefore, the number of predicted red-throated diver turbine collisions over 40 years is tiny (undetectable in population monitoring) in a population with a FCS and a surplus of non-breeding individuals. Under this scenario, the magnitude of adverse impacts of land-take, disturbance and collision risk combined on red-throated diver is negligible, with **No Likely Significant Effects** predicted.

7.6.18 Although red-throated diver is a species of high conservation importance, the likely effects are judged to be not significant, i.e. there would be no detectable national or regional population effects. Therefore, if the Proposed Development was built, the available information indicates, using the three tests, that FCS would not be affected because:

- Red-throated diver is likely to maintain itself on a long-term basis as a viable component of its habitat in Scotland (and the Shetland NHZ);
- The natural range of red-throated diver in Scotland (and the Shetland NHZ) would not be reduced by the Proposed Development, nor would it become likely to be reduced in the foreseeable future; and
- There would be (and would continue to be) a sufficiently large habitat area in Scotland (and the Shetland NHZ) to maintain the red-throated diver population on a long-term basis should the Proposed Development be built.

7.6.19 The OBEHMP (**Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**) would restore large areas of degraded blanket bog habitat, much of it to the east and south of the Study Area. This would include targeted restoration of bog pools, including the blocking of eroded outflows of former dried out lochans, allowing them to be rewetted and thereby restoring several potential diver breeding lochans. It is considered likely that once rewetted, some of these restored lochans would provide potentially suitable breeding locations, in an area regularly used, and indeed favoured, by breeding red-throated divers. Consequently, the beneficial impact of just one restored breeding lochan being regularly used would far outweigh the negative impact of one predicted red-throated diver collision (death) every 16.7 years.

Golden plover

7.6.20 Golden plover is an Annex 1 species and therefore of high conservation importance (**Table 7.7**). The regional, national and international population estimates of this species are known (**Table 7.8**). The behavioural sensitivity of the species is considered to be moderate (**Table 7.9**). Without evidence to the contrary, golden plover is likely to be in FCS nationally, within Scotland.

LAND-TAKE

7.6.21 Golden plover could potentially be susceptible to land-take and associated habitat loss from construction activities. Five pairs of golden plovers were recorded breeding within the Study Area during surveys in both 2022 and 2023 (**Figure 7.5: Golden Plover Territory Centres 2022-2023 (EIAR Volume 3a)**). Golden plover territories were typically associated with flatter areas, often on or near elevated hill tops or gentle slopes where there was suitable shorter vegetation; nesting golden plover show a preference for short vegetation[56].

7.6.22 In 2022, within the Study Area two golden plover pairs bred in the 'no turbine development zone' south of the Crooksetter Hill, one of these pairs was on the east side of Sand Water and one of these pairs was on the south east side of Loch of Bordigarth. Both of these pairs are away from any areas of construction and lie outside of the Application Boundary and so would be unaffected. Of the three other pairs in 2022, one pair bred just to the south west of the mast at Brough with its territory centre approximately 750 m away from the nearest land-take, also outside of the Application Boundary. Another pair bred to the west-south west of unnamed hill '77 (outwith the Application Boundary), with the territory centre approximately >300 m away from the nearest infrastructure and so should be unaffected by land-take[57]. One pair had a notional territory centre in the middle of the Application Boundary approximately 200 m from the nearest land-take and so should be unaffected by land-take. However, it should be noted that the 2022 nest location within the Application Boundary was not located and that a notional territory centre was plotted, so caution should be exercised when using these. Nevertheless, golden plovers have relatively small territories, so notional centres are therefore likely to be within the middle of territories and close to actual nests, providing a level of confidence in terms of potentially identifying where golden plover may be susceptible to land-take impacts.

7.6.23 In 2023, the Study Area distribution of golden plover pairs was broadly similar to 2022, with four pairs outwith the Application Boundary, one to the north east of Sand Water and two around unnamed hill '77. Two pairs bred within the Application Boundary; one pair had a

[56] Ratcliffe, D. A. 1977. Observations on the breeding of the Golden Plover in Great Britain. Bird Study 23: 63-116.

[57] Whilst the territory centre lies just beyond the Application Boundary, the territory itself overlaps the boundary.

territory centre in the middle of the Application Boundary approximately 150-200 m from the nearest infrastructure and so should be unaffected by land-take and the other, a new pair between the proposed construction compound and the proposed borrow pit search area near the Site entrance (whilst its notional territory centre is plotted just outside of the Application Boundary its territory overlapped with it, so is considered to be within the Application Boundary). As with 2022, nest locations within the Application Boundary in 2023 were not located and only notional territory centres are plotted, so caution should be exercised when using these distance metrics.

7.6.24 Evidence from Before-After Control-Impact (BACI) studies have shown little or no impacts of operational wind farm infrastructure on golden plover distribution and numbers[58,59,60], so it could be argued that no significant effects are likely. Earlier work suggesting wind farm impacts on golden plover[61] is widely considered to be methodologically flawed and the results were not repeated in the later better designed BACI studies. Recently, NatureScot changed their guidance in relation to control and reference sites and studies[62] stating "*We previously recommended the BACI method however it has since been shown that the practical difficulties of selecting a suitable comparison site often renders this method ineffective. We therefore no longer recommend this method*". Consequently, previously published BACI studies, purportedly demonstrating effects of turbines on breeding waders (such as those listed above), have been called into question by the regulator and it is not clear what effects, if any, turbines have on golden plovers.

7.6.25 Construction related land-take, in particular the access tracks, could result in modest, localised hydrological change in the adjacent peatland habitats. However, golden plover do not appear to be particularly sensitive to localised changes in the water table, or even moderate peat erosion. Indeed, breeding golden plover use many types of moorland habitat including dry, even degraded areas[63]. Therefore, the magnitude of any adverse direct land-take impacts or indirect impacts through habitat modification is considered negligible, with permanent adverse effects on up to two pairs of golden plover.

CONSTRUCTION/OPERATIONAL DISTURBANCE

7.6.26 Golden plovers are judged to have moderate sensitivity to disturbance (**Table 7.7**) and therefore, construction works could potentially displace birds from suitable nesting areas, resulting in reduced site productivity.

7.6.27 For the purposes of this assessment, it is assumed that golden plovers nesting within 300 m of construction work sites would experience/be susceptible to some adverse disturbance from

[58] Douglas, D.J.T., Bellamy, P.E. and Pearce-Higgins, J.W. 2011. Changes in the abundance and distribution of upland breeding birds at an operational wind farm. Bird Study, 58: 37–43.

[59] Pearce-Higgins, J.W., Stephen, L., Douse, A. and Langston, R.H.W. 2012. Greater impacts of wind farms on bird populations during construction than subsequent operation: results of a multi-site and multi-species analysis. Journal of Applied Ecology, 49: 386–394.

[60] Fielding, A.H. and Haworth, P.F. 2013. Farr wind farm: A review of displacement disturbance on golden plover arising from operational turbines 2005-2013. Haworth Conservation, Isle of Mull.

[61] Pearce-Higgins, J.W., Stephen, L., Langston, R.H.W., Bainbridge, I.P. and Bullman, R. 2009. The distribution of breeding birds around upland wind farms. Journal of Applied Ecology, 46: 1323–1331.

[62] NatureScot, (2025). Recommended bird survey methods to inform impact assessment of onshore windfarms.

[63] Whittingham, M.J., Percival, S.M. and Brown, A.F. 2001. Habitat selection by Golden Plover *Pluvialis apricaria* chicks. Basic and Applied Ecology, 2: 177–191.

construction activities. This is likely to be a cautious assumption. With the efficacy of BACI studies now questioned by NatureScot, it is not clear what effect operational wind farms would have on golden plover distribution and numbers. Nevertheless, based on this 300 m distance, potential construction related disturbance is possible for one to two pairs of golden plover. Therefore, based on this assumption, the magnitude of potential operational disturbance would be likely be negligible, with a temporary adverse impact on up to two pairs of golden plover (during the period of construction). As for all breeding species, pre-construction and construction monitoring would be undertaken so that damage/disturbance to any nests is avoided.

COLLISION

7.6.28 There have been no reported collisions of golden plover with wind turbines in Britain to date, but they have been reported from wind farms in Europe[64]. Whilst suggestive of an inherent low risk to collision, golden plover is a relatively small bird, and any collision related carcases are likely to go un-noticed unless systematic carcass searches are regularly carried out (which they are not at most constructed wind farms).

7.6.29 At a 98 % avoidance rate, the estimated collision rate was 0.24 collisions per year, equivalent to one bird strike every 4.2 years (so c. ten over the life-time of the Proposed development) (**Technical Appendix 7.2: Collision Risk Assessment (EIAR Volume 4)**). The associated uncertainty ranged from 0 to 0.74 collisions per year (from zero to one bird strike every 1.35 years), reflecting a 95 % confidence interval with an uncertainty range of 210 % (truncated at zero to maintain biological realism). The estimated collision risk (excluding avoidance assumptions) exhibited a substantial uncertainty range of 210 %. This large spread of values primarily stems from the diversity of areal flight density estimates presented in **Technical Appendix 7.2: Collision Risk Assessment (EIAR Volume 4)**, which result from real heterogeneity in golden plover flight activity, such as many true absences, rather than from measurement errors or insufficient sampling. Consequently, the magnitude of potential collision would be likely be negligible.

SUMMARY OF LIKELY EFFECTS ON GOLDEN PLOVER

7.6.30 The Proposed Development construction and operational activities are likely to impact on one to two breeding pairs of golden plover through land-take/construction related disturbance and occasional non-breeding mortality through collision. However, if two pairs were adversely affected (and there is no evidence to suggest this would likely occur), it is possible to estimate a theoretical worst-case impact magnitude. Using the Shetland NHZ metric of 5,665 pairs, the theoretical loss of up to two pairs of golden plover (assuming they do not move elsewhere; an unlikely assumption given some pairs use different territories annually strongly suggesting potentially suitable breeding habitat is not a limiting factor) as a result of land-take/disturbance would result in a reduction in the Shetland NHZ population of 0.04 %. Therefore, under this worst-case (not likely) scenario, the magnitude of adverse impacts of land-take/disturbance on golden plover would be negligible.

7.6.31 Whilst many of the VP flightlines recorded and used to calculate collision risk come from territorial birds, the winter flight activity values (and so predicted collision metrics) were substantially driven by three large flocks (19-60 birds) flying through the risk window, so it would not be safe to assume that if two affected breeding pairs of golden plover abandoned

[64] Humphreys, E.M., Marchant, J.H., Wilson, M.W. and Wernham, C.V. 2015. Golden Plover (*Pluvialis apricaria*): SWBSG Species Dossier 13. Report by BTO Scotland to SWBSG as part of Project 1403. Updated by SWBSG March 2017.

the Study Area that collision risk would fully disappear (although undoubtedly some would). Although golden plover is a species of high conservation importance, the likely collision effects are judged to be not significant, i.e. there would be no detectable population level impacts and so the Shetland NHZ would not likely be significantly affected. Under this scenario, the magnitude of adverse impacts of land-take, disturbance and collision risk combined on golden plover is negligible, with **No Likely Significant Effects** predicted.

7.6.32 Therefore, if the Proposed Development is built, the available information indicates, using the three tests, that FCS would not be affected because:

- Golden plover would be likely to maintain itself on a long-term basis as a viable component of its habitat nationally in Scotland (and the Shetland NHZ);
- The natural range of golden plover in Scotland (and the Shetland NHZ) would not be reduced by the Proposed Development; and
- There would be (and would continue to be) a sufficiently large habitat area in Scotland (and the Shetland NHZ) to maintain the golden plover population on a long-term basis should the Proposed Development be built.

Ringed plover

7.6.33 Ringed plover is a UK Red-listed species and therefore of high conservation importance (**Table 7.7**). The regional, national and international population estimates of this species are known (**Table 7.8**). The behavioural sensitivity of the species is considered to be low (**Table 7.9**). Without evidence to the contrary, ringed plover is likely to be in FCS nationally, within Scotland.

LAND-TAKE

7.6.34 Ringed plover is considered unlikely to be susceptible to land-take and associated habitat loss from construction activities. In 2023 one pair of ringed plovers held territory on the beach north of Sullom Voe, just outside the Application Boundary (**Figure 7.6: Ringed Plover Territory Centres 2022-2023 (EIAR Volume 3a)**); none were apparently present in 2022. Ringed plover is a largely coastal wader, nesting on or above the strandline on open sand and shingle beaches, but can also use sand dunes, grass hinterlands, rocky headlands, maritime heath, small storm beaches and artificial habitats[65]. Ringed plovers do not breed in the blanket bog and dry modified bog habitats which characterise most of the Application Boundary. Therefore, the magnitude of any adverse direct land-take impacts or indirect impacts through habitat modification is considered likely to be zero.

CONSTRUCTION/OPERATIONAL DISTURBANCE

7.6.35 Ringed plovers are adaptable and readily use artificial/modified habitats such for breeding. For example, Pennington *et al*.[66] reported that during 1984 British Trust for Ornithology (BTO) breeding bird surveys in Shetland, 41 ringed plover nests were found on roadside hard shoulders, 11 on airstrips, eight on industrial sites, seven in quarries and one on a football pitch. Consequently, the evidence from breeding ringed plovers in Shetland indicates that the species nests within highly modified habitats, often close to regular human activity.

[65] Forrester, R. and Andrews, I. (eds). 2007. The Birds of Scotland. The Scottish Ornithologists' Club (SOC), Aberlady.

[66] Pennington, M., Osborn, K., Harvey, P., Riddington, R., Okill, D., Elllis, P. and Heubeck, M. 2004.The Birds of Shetland. Helm, London.

7.6.36 Breeding ringed plover is considered unlikely to be impacted by either construction or operational disturbance. With the Sullom Voe Gas Plant between the 2023 pair (which bred on the beach at Orka Voe) and the Application Boundary, interaction is considered unlikely as the nearest distance between infrastructure and the territory centre is likely to be c. 500 m[67]. There is a possibility that breeding ringed plover could use the artificial habitats created during construction of the Proposed Development, so regular and targeted breeding season checks would be undertaken on all potentially suitable artificial habitats throughout construction to ensure that if they settle to breed on the Site, appropriate mitigation measures can be implemented to protect any potentially vulnerable nests. Therefore, the magnitude of any adverse construction/operational disturbance is considered likely to be zero.

COLLISION

7.6.37 No ringed plover flightlines were recorded within the Turbine Area during VP surveys, so potential collision risk has been discounted from further consideration.

SUMMARY OF LIKELY EFFECTS ON RINGED PLOVER

7.6.38 The Proposed Development construction and operational activities is unlikely to adversely impact on any pairs of ringed plover. Consequently, no adverse impacts whatsoever are predicted. There would be no detectable population level impacts and so the Shetland NHZ would not likely be significantly affected. **No Likely Significant Effects** are predicted

7.6.39 Therefore, if the Proposed Development is built, the available information indicates, using the three tests, that FCS would not be affected because:

- Ringed plover would be likely to maintain itself on a long-term basis as a viable component of its habitat nationally in Scotland (and the Shetland NHZ);
- The natural range of ringed plover in Scotland (and the Shetland NHZ) would not be reduced by the Proposed Development; and
- There would be (and would continue to be) a sufficiently large habitat area in Scotland (and the Shetland NHZ) to maintain the ringed plover population on a long-term basis should the Proposed Development be built.

Dunlin

7.6.40 Dunlin is an Annex 1 species and therefore of high conservation importance (**Table 7.7**). The regional, national and international population estimates of this species are known (**Table 7.8**). The behavioural sensitivity of the species is considered to be moderate (**Table 7.9**). Without evidence to the contrary, dunlin is likely to be in FCS nationally, within Scotland.

LAND-TAKE

7.6.41 Dunlin could potentially be susceptible to land-take and associated habitat loss from construction activities. Across the years surveyed, up to six pairs of dunlin (six in 2022 and six in 2023) attempted breeding within the Study Area (**Figure 7.7: Dunlin Territory Centres 2022-2023 (EIAR Volume 3a)**). Of these, two pairs (2022) and one to two pairs (2023) held territory within the Application Boundary. Dunlin have very small territories, are sensitive to human activity, with visual disturbance and sudden noise events over moderate distances (~250 m) disturbing them. Therefore, those notional territory centres close to proposed infrastructure (around Turbine 6) are likely to be adversely affected by land-take

[67] Surveyors did not enter the Sullom Voe Gas Plant to locate the ringed plover nest, so nearest distances are estimates to the apparent territory centre.

impacts. These one to two notional territory centres lie close to proposed track, hardstanding and turbines and so for the purpose of this assessment are assumed to be lost as a result of land-take. This assumes they do not move elsewhere (an unlikely assumption); numbers vary annually indicating vacant territories are available year on year. Therefore, the magnitude of any adverse direct land-take impacts or indirect impacts through habitat modification is considered likely to be negligible.

CONSTRUCTION/OPERATIONAL DISTURBANCE

7.6.42 One to two pairs of dunlin (those within the Application Boundary) could potentially be susceptible to construction/operational disturbance, but for the purpose of this assessment these have already been considered 'lost' through displacement caused by land-take. As for all breeding species, pre-construction and construction monitoring would be undertaken so that damage/disturbance to any nests is avoided. Therefore, the magnitude of any adverse construction/operational disturbance is considered likely to be negligible.

COLLISION

7.6.43 There have been no reported collisions of dunlin with wind turbines in Britain or Europe to date[68], but given its tiny size, any collision related carcases are likely to go un-noticed unless systematic carcass searches are carried out (which they are not at most constructed wind farms).

7.6.44 No dunlin flightlines within the risk window were recorded within the Turbine Area during VP surveys in 2022-2023. However, dunlin is a very small bird and difficult to detect at distance, so a level of under-recording where present is considered likely. Therefore, the magnitude of any collision is considered likely to be negligible/zero. Consequently, based on VP flightlines recorded, potential collision risk has been discounted from further consideration.

SUMMARY OF LIKELY EFFECTS ON DUNLIN

7.6.45 The Proposed Development construction and operational activities are likely to impact on one-two breeding pairs of dunlin through land-take. However, if two pairs were adversely affected (and there is no evidence to suggest this would likely occur), it is possible to estimate a theoretical worst-case impact magnitude. Using the Shetland NHZ metric of 2,054 pairs, the theoretical loss of up to two pairs of dunlin (assuming they do not move elsewhere; an unlikely assumption given some pairs use different territories annually strongly suggesting potentially suitable breeding habitat is not a limiting factor) as a result of land-take would result in a reduction in the Shetland NHZ population of 0.1 %. Therefore, under this worst-case (not likely) scenario, the magnitude of adverse impacts of land-take, disturbance and collision on dunlin is negligible, with **No Likely Significant Effects** predicted.

7.6.46 Therefore, if the Proposed Development is built, the available information indicates, using the three tests, that FCS would not be affected because:

- Dunlin would be likely to maintain itself on a long-term basis as a viable component of its habitat nationally in Scotland (and the Shetland NHZ);
- The natural range of dunlin in Scotland (and the Shetland NHZ) would not be reduced by the Proposed Development; and

[68] Humphreys, E.M., Marchant, J.H., Wilson, M.W. and Wernham, C.V. 2015. Dunlin (*Calidris alpina*): SWBSG Species Dossier 14. Report by BTO Scotland to SWBSG as part of Project 1403. Updated by SWBSG 2017.

- There would be (and would continue to be) a sufficiently large habitat area in Scotland (and the Shetland NHZ) to maintain the dunlin population on a long-term basis should the Proposed Development be built.

Lapwing

7.6.47 Lapwing is a UK Red-listed species and therefore of high conservation importance (**Table 7.7**). The regional, national and international population estimates of this species are known (**Table 7.8**). The behavioural sensitivity of the species is considered to be low (**Table 7.9**). Without evidence to the contrary, lapwing is likely to be in FCS nationally, within Scotland.

LAND-TAKE

7.6.48 Five pairs of lapwing were recorded breeding within the Study Area in 2022 and 2023, but none were within the Application Boundary (**Figure 7.8: Lapwing Territory Centres 2022-2023 (EIAR Volume 3a)**), so no land-take impacts are predicted. As a result, the magnitude of land-take impacts from the Proposed Development on lapwings are predicted to be zero.

CONSTRUCTION/OPERATIONAL DISTURBANCE

7.6.49 As no pairs of lapwing bred within the Application Boundary, it is unlikely that construction/operational disturbance of any adjacent breeding birds would occur; lapwings have low sensitivity, often selecting to nest in artificial habitats (indeed a pair nested within the Sullom Voe compound south of Orka Voe in both years) and so no disturbance impacts are predicted and the magnitude of disturbance from the Proposed Development on lapwings are predicted to be zero/negligible. As for all breeding species, pre-construction and construction monitoring would be undertaken so that damage/disturbance to any nests is avoided. As a result, the magnitude of construction/operational disturbance impacts from the Proposed Development on lapwings are predicted to be zero.

COLLISION

7.6.50 For lapwing, the CRA was disaggregated into two turbine clusters to reflect the substantial spatial variation in lapwing flight activity across the Study Area. One cluster consists of three turbines located within an area of higher lapwing activity in the south-east of the Study Area, while the second cluster comprises five turbines situated within an area characterised by comparatively lower levels of activity. This is explained in **Technical Appendix 7.2: Collision Risk Assessment (EIAR Volume 4)**. To derive an overall collision, the predicted collision totals from each cluster were summed, and associated uncertainty was propagated accordingly. In the higher-use turbine cluster analysis, at a 98 % avoidance rate, the estimated collision rate was 0.5 collisions per year, equivalent to one bird strike every two years. The associated uncertainty ranged from 0 to 1.33 collisions per year (from zero to one bird strike every 0.75 years), reflecting a 95 % confidence interval with an uncertainty range of 166 % (truncated at zero to maintain biological realism). In the lower-use turbine cluster analysis, at a 98 % avoidance rate, the estimated collision rate was 0.06 collisions per year, equivalent to one bird strike every 16.7 years. The associated uncertainty ranged from 0 to 0.25 collisions per year (from zero to one bird strike every 1.1 years), reflecting a 95 % confidence interval with an uncertainty range of 311 % (truncated at zero to maintain biological realism).

7.6.51 Combining the collision estimates from both the lower-use and higher-use cluster analysis (and propagating their uncertainties) gives an overall collision risk for lapwing of 0.56 (+/- 152 %) collisions a year (one bird strike expected every 1.78 years). The associated uncertainty ranges from 0 to 1.41 collisions per year (**Technical Appendix 7.2: Collision**

Risk Assessment (EIAR Volume 4)). As a result, the magnitude of collision impacts from the Proposed Development on lapwings are predicted to be negligible to minor (one death every 1.78 years in a population of 1,740 pairs; 23 lapwings during the lifetime of the Proposed Development).

SUMMARY OF LIKELY EFFECTS ON LAPWING

7.6.52 It is considered that the magnitude of all the impacts on lapwing due to the construction and operational activities of the Proposed Development is likely to be negligible/zero, with no pairs adversely affected by land-take/displacement and so no likely significant effects are predicted. Nevertheless, collision risk estimates suggests the potential death of 23 lapwings during the life-time of the Proposed Development. **Technical Appendix 7.2: Collision Risk Assessment (EIAR Volume 4)** illustrates how localised the collision risk impacts are, with the vast majority of at-risk flightlines recorded in grassland-heath mosaic habitats around T7. The predicted loss of one bird to collision every 1.78 years needs to be considered against the regional population of 1,740 pairs (annual loss of 0.03 %) and national population of 71,500-105,600 pairs and so the likely combined effects are judged to be **Not Significant**, i.e. there would be no detectable population level impacts and so the Shetland NHZ would not likely be significantly affected.

7.6.53 Therefore, if the Proposed Development is built, the available information indicates, using the three tests, that FCS would not be affected because:

- Lapwing is likely to maintain itself on a long-term basis as a viable component of its habitat in Scotland (and the Shetland NHZ);
- The natural range of lapwing in Scotland (the Shetland NHZ) would not be reduced by the Proposed Development; and
- There would be (and would continue to be) a sufficiently large habitat area in Scotland (and the Shetland NHZ) to maintain the lapwing population on a long-term basis.

Redshank

7.6.54 Redshank is not a conservation listed species and therefore is considered to be of moderate conservation importance (**Table 7.7**). The regional, national and international population estimates of this species are known (**Table 7.8**). The behavioural sensitivity of the species is considered to be low (**Table 7.9**). Without evidence to the contrary, redshank is likely to be in FCS nationally, within Scotland.

LAND-TAKE

7.6.55 Redshanks were recorded breeding within the Study Area during surveys in both years. Across the years surveyed, up to six pairs of redshank; (six pairs in 2022 and six pairs in 2023) attempted breeding within the Study Area (**Figure 7.9: Redshank Territory Centres 2022-2023 (EIAR Volume 3a)**). In 2022, all territory centres were outside of the Application Boundary. In 2023, five out of six pairs were outside of the Application Boundary, but one was in the middle of the Site, close to a proposed access track and turbine. Given the proximity of the 2023 territory centre, it seems likely that one pair of redshank could be adversely affected (lost through displacement) by land-take. As a result, the magnitude of land-take impacts from the Proposed Development on redshank are predicted to be negligible.

CONSTRUCTION/OPERATIONAL DISTURBANCE

7.6.56 One pair of redshank (within the Application Boundary in 2023) could potentially be susceptible to construction/operational disturbance, but for the purpose of this assessment

they have already been considered 'lost' through displacement caused by land-take. As for all breeding species, pre-construction and construction monitoring would be undertaken so that damage/disturbance to any nests is avoided. As a result, the magnitude of construction/operational disturbance impacts from the Proposed Development on redshank are predicted to be negligible/zero.

COLLISION

7.6.57 For redshank, the CRA was disaggregated into two turbine clusters to reflect the substantial spatial variation in redshank flight activity across the Study Area. One cluster consists of three turbines located within an area of higher redshank activity in the south-east of the Study Area, while the second cluster comprises five turbines situated within an area characterised by comparatively lower levels of activity. This is explained in **Technical Appendix 7.2: Collision Risk Assessment (EIAR Volume 4)**. To derive an overall collision, the predicted collision totals from each cluster were summed, and associated uncertainty was propagated accordingly. In the higher-use turbine cluster analysis, at a 98 % avoidance rate, the estimated collision rate was 0.05 collisions per year, equivalent to one bird strike every 20 years. The associated uncertainty ranged from 0 to 0.11 collisions per year (from zero to one bird strike every 9.1 years), reflecting a 95 % confidence interval with an uncertainty range of 126 % (truncated at zero to maintain biological realism). In the lower turbine cluster analysis, at a 98 % avoidance rate, no collisions are estimated for redshank.

7.6.58 Given no collisions are expected from the lower-use cluster, the combined collision risk is posed only from the higher-use cluster analysis. The overall collision risk for redshank of 0.05 collisions per year (+/- 126 %) is equivalent to one bird strike every 20 years. The associated uncertainty ranged from 0 to 0.11 collisions per year (from zero to one bird strike every 9.1 years), reflecting a 95 % confidence interval with an uncertainty range of 126 % (truncated at zero to maintain biological realism) (**Technical Appendix 7.2: Collision Risk Assessment (EIAR Volume 4)**). Consequently, the magnitude of collision impacts from the Proposed Development on redshank are considered likely to be negligible.

SUMMARY OF LIKELY EFFECTS ON REDSHANK

7.6.59 It is considered that the combined magnitude of all the impacts on redshank due to land-take, construction and operational disturbance and collision of the Proposed Development is likely to be negligible, with one pair adversely affected and considered lost due to land-take and two individuals killed by collision risk during the 40-year life-time of the Proposed Development, so no likely significant effects are predicted and the likely effects are judged to be **Not Significant**, i.e. there would be no detectable population level impacts and so the Shetland NHZ would not likely be significantly affected.

7.6.60 Therefore, if the Proposed Development is built, the available information indicates, using the three tests, that FCS would not be affected because:

- Redshank is likely to maintain itself on a long-term basis as a viable component of its habitat in Scotland (and the Shetland NHZ);
- The natural range of redshank in Scotland (the Shetland NHZ) would not be reduced by the Proposed Development; and
- There would be (and would continue to be) a sufficiently large habitat area in Scotland (and the Shetland N) to maintain the redshank population on a long-term basis.

Whimbrel

7.6.61 Whimbrel is a Schedule 1 and UK Red-listed species and therefore of high conservation importance (**Table 7.7**). The regional, national and international population estimates of this species are known (**Table 7.8**). The behavioural sensitivity of the species is considered to be moderate (**Table 7.9**). Without evidence to the contrary, whimbrel is likely to be in FCS nationally, within Scotland (the population has increased recently from 295 pairs to 364 pairs).

LAND-TAKE

7.6.62 Further details in **Technical Appendix 7.3: Confidential Information (EIAR Volume 5)**.

CONSTRUCTION/OPERATIONAL DISTURBANCE

7.6.63 Further details in **Technical Appendix 7.3: Confidential Information (EIAR Volume 5)**.

COLLISION

7.6.64 Further details in **Technical Appendix 7.3: Confidential Information (EIAR Volume 5)**.

SUMMARY OF LIKELY EFFECTS ON WHIMBREL

7.6.65 The Proposed Development construction and operational activities are likely to impact on one breeding pair of whimbrel through land-take. Therefore, it is possible to estimate the land-take impact magnitude. Using the Shetland NHZ metric of 364 pairs, the loss of one pair of whimbrel (assuming they do not move elsewhere; an unlikely assumption given the population is expanding at present, strongly suggesting potentially suitable breeding habitat is not a limiting factor) as a result of land-take would result in a reduction in the Shetland NHZ population of 0.3 %. Therefore, under this scenario, the magnitude of adverse impacts of land-take on whimbrel would likely be negligible.

7.6.66 With many of the recorded VP flightlines used to calculate collision risk coming from the territorial pair predicted to be lost to land-take, the actual/biological collision risk would likely be much lower than the predicted one bird strike every 3.6 years. Although whimbrel is a species of high conservation importance, the likely effects are judged to be **Not Significant**, i.e. there would be no detectable population level impacts and so the Shetland NHZ would not likely be significantly affected.

7.6.67 Therefore, if the Proposed Development is built, the available information indicates, using the three tests, that FCS would not be affected because:

- Whimbrel would be likely to maintain itself on a long-term basis as a viable component of its habitat nationally in Scotland (and the Shetland NHZ);
- The natural range of whimbrel in Scotland (and the Shetland NHZ) would not be reduced by the Proposed Development; and
- There would be (and would continue to be) a sufficiently large habitat area in Scotland (and the Shetland NHZ) to maintain the whimbrel population on a long-term basis should the Proposed Development be built.

Curlew

7.6.68 Curlew is a UK Red-listed species and therefore of high conservation importance (**Table 7.7**). The regional, national and international population estimates of this species are known (**Table 7.8**). The behavioural sensitivity of the species is considered to be moderate (**Table 7.9**). Without evidence to the contrary, curlew is likely to be in Unfavourable Conservation Status

nationally, within Scotland, having shown a large and continuing population decline of 59 % since 1995[69].

LAND-TAKE

7.6.69 Across the years surveyed, up to eighteen pairs of curlew (c. 18 pairs in 2022 and c. 15 pairs in 2023) attempted breeding within the Study Area (**Figure 7.11: Curlew Territory Centres 2022-2023 (EIAR Volume 3a)**). As noted, these breeding metrics should be treated with caution (i.e. low confidence), as curlews have large and complex territories, making it difficult (in an unmarked population) to estimate exact numbers of pairs present. Nevertheless, in 2022, c. ten pairs were present in the 'no turbine development zone' south of the Crooksetter Hill, and a further c. four pairs bred to the north east of the Application Boundary. An estimated two pairs bred within the Turbine Area north of Crooksetter Hill in 2022. In 2023, c. ten pairs bred outside of the Application Boundary, but two pairs bred within the Turbine Area in the north of the Application Boundary and a further two pairs bred within other parts of the Application Boundary, away from the Turbine Area in both years (**Figure 7.11: Curlew Territory Centres 2022-2023 (EIAR Volume 3a)**).

7.6.70 Given the proximity of the 2022 and 2023 territory centres, it seems likely that up to four pairs of curlew would be adversely affected (i.e. lost through displacement) by land-take. As a result, the magnitude of adverse land-take impacts from the Proposed Development on curlew are predicted to be negligible regionally, adversely affecting c. 0.1 % of the Shetland population.

CONSTRUCTION/OPERATIONAL DISTURBANCE

7.6.71 Some research into impacts of wind farms on curlew suggests adverse effects are more likely to be caused by construction and operational disturbance (displacement) and not land-take per se[70]. However, with such BACI studies now called into question by NatureScot[71], it is not clear what effects would actually occur. Four pairs of curlew (those within the Application Boundary) could potentially be susceptible to construction/operational disturbance, but for the purpose of this assessment these pairs have already been considered 'lost' through displacement caused by land-take.

7.6.72 As with several other breeding wader species, curlew on their breeding territories show disturbance responses to the presence of a moving or static person up to 250 m away (**Table 7.9**). As for all breeding species, pre-construction and construction monitoring would be undertaken so that damage/disturbance to any nests is avoided. Consequently, the magnitude of temporary (during construction) adverse impacts of disturbance on breeding curlew would likely be negligible and no likely significant effects are predicted.

COLLISION

7.6.73 For curlew, the CRA was disaggregated into two turbine clusters to reflect the substantial spatial variation in curlew flight activity across the Study Area. One cluster consists of three turbines located within an area of higher curlew activity in the south-east of the Study Area,

[69] Douglas, D., Brown, D., Cohen, S., Colwell, M., Donaghy, A., Drewitt, A., Finney, K., Franks, S., Heptinstall, D, Hilton, G., Kelly, S., Lindley, P., McCarthy, B., McCullooch, N., O'Donoghue, B., Sanders, S., Thompson, P. and Whitehead, S. 2021. Recovering the Eurasian Curlew in the UK and Ireland: process since 2015 and looking ahead. British Birds 114: 341-350.

[70] Pearce-Higgins, J.W., Stephen, L., Douse, A. and Langston, R.H.W. 2012. Greater impacts of wind farms on bird populations during construction than subsequent operation: results of a multi-site and multi-species analysis. Journal of Applied Ecology, 49: 386–394.

[71] NatureScot, (2025). Recommended bird survey methods to inform impact assessment of onshore windfarms.

while the second cluster comprises five turbines situated within an area characterised by comparatively lower levels of activity. This is explained in **Technical Appendix 7.2: Collision Risk Assessment (EIAR Volume 4)**. To derive an overall collision, the predicted collision totals from each cluster were summed, and associated uncertainty was propagated accordingly. In the higher-use turbine cluster analysis, at a 98 % avoidance rate, the estimated collision rate was 1.31 collisions per year, equivalent to one bird strike every 0.76 years. The associated uncertainty ranged from 0 to 2.67 collisions per year (from zero to one bird strike every 0.37 years), reflecting a 95 % confidence interval with an uncertainty range of 104 % (truncated at zero to maintain biological realism). In the lower-use turbine cluster analysis, at a 98% avoidance rate, the estimated collision rate was 0.32 collisions per year, equivalent to one bird strike every 3.1 years. The associated uncertainty ranged from 0 to 0.89 collisions per year (from zero to one bird strike every 1.1 years), reflecting a 95 % confidence interval with an uncertainty range of 177 % (truncated at zero to maintain biological realism).

7.6.74 Combining the collision estimates from both the lower-use and higher-use turbine clusters (and propagating their uncertainties) gives an overall collision risk for curlew in the Neshion Energy Park of 1.63 (+/- 91 %) collisions a year (one bird strike expected every 0.61 years). The associated uncertainty ranges from 0.15 to 3.11 collisions per year. This is a relatively high level of predicted collision mortality for this UK Red-listed (and globally Near-threatened) species. Whether such high predicted morality rates would occur once land-take displacement is accounted for is unclear. The vast majority of curlew activity recorded within the Application Boundary was in relation to breeding pairs, so with these pairs 'lost' (in reality they would likely be displaced and move elsewhere) then associated flight activity would be dramatically reduced. However, it is not safe to assume that flight activity would reduce to near zero, as some curlew flocks were occasionally recorded flying through the Application Boundary, so some collision mortality of non-territorial curlews is still considered likely to occur. Consequently, the magnitude of collision impacts from the Proposed Development on curlew are considered likely to be negligible-low.

SUMMARY OF LIKELY EFFECTS ON CURLEW

7.6.75 The Proposed Development construction and operational activities are likely to result in the loss of four breeding pair of curlew through land-take. Therefore, it is possible to estimate the land-take impact magnitude. Using the Shetland NHZ metric of 4,227 pairs, the loss of four pairs of curlew (assuming they do not move elsewhere; an unlikely assumption given potentially suitable breeding habitat is not a limiting factor) as a result of land-take would result in a reduction in the Shetland NHZ population of c. 0.1 %. Therefore, under this scenario, the magnitude of adverse impacts of land-take on curlew would be negligible.

7.6.76 As already discussed, the predicted mortality rates associated with collision risk once land-take displacement is accounted for is unknown but lies between 0.15 to 3.11 birds per year without land-take considerations. Biologically, the four breeding curlew pairs can't be lost (and displaced) through land-take and then killed through collision; it is likely to be one or the other.

7.6.77 Taking the mean overall collision risk for curlew of 1.63 (+/- 91 %) collisions a year, then rounded up this quates to two individuals, or one extra pair. Although this worse-case scenario is biologically unrealistic, if this was considered an additive loss of an additional pair, then it is possible to estimate what the loss of an extra curlew pair would mean. Using the Shetland NHZ metric of 4,227 pairs, the loss of five pairs of curlew (four to land-take, one to collision) would result in a reduction in the Shetland NHZ population of c. 0.12 %. The biologically likely

scenario is that four curlew pairs 'lost' to land-take would move (be displaced) elsewhere to breed in Shetland and that predicted collision mortality rates would substantially decrease accordingly.

7.6.78 Although curlew is a species of high conservation importance, the likely effects are judged to be **Not Significant**, i.e. there would be no detectable population level impacts on the Shetland NHZ and so the national population would not likely be significantly affected. The Proposed Development will not affect the recovery of the species' FCS, because the available information indicates, using the three tests, that FCS would not be affected because:

- Curlew would be likely to maintain itself on a long-term basis as a viable component of its habitat nationally in Scotland (and the Shetland NHZ);
- The natural range of curlew in Scotland (and the Shetland NHZ) would not be reduced by the Proposed Development; and
- There would be (and would continue to be) a sufficiently large habitat area in Scotland (and the Shetland NHZ) to maintain the curlew population on a long-term basis should the Proposed Development be built.

7.6.79 NatureScot's response to any development proposal is guided by maintaining a viable population across the species' natural range along with maintenance of a sufficient area of habitat[72]. "*An effect should therefore be judged as of concern where it would adversely affect the existing FCS of a species or prevent a species recovering or maintaining its FCS in Scotland*". This situation does not arise for curlew with the Proposed Development.

Merlin

7.6.80 Merlin is an Annex 1 species, Schedule 1 species and UK Red-listed species and therefore of high conservation importance (**Table 7.7**). The regional, national and international population estimates of this species are known (**Table 7.8**). The behavioural sensitivity of the species is considered to be high (**Table 7.9**). Without evidence to the contrary, merlin is likely to be in FCS nationally, within Scotland.

LAND-TAKE

7.6.81 There was no evidence of breeding merlin within the Study Area during any surveys. Consequently, breeding merlin would not be potentially susceptible to land-take (habitat loss) from construction related activities. Therefore, the magnitude of any adverse direct land-take impacts or indirect impacts through habitat modification is considered likely to be zero.

CONSTRUCTION/OPERATIONAL DISTURBANCE

7.6.82 There was no evidence of breeding merlin within the Study Area during any surveys. Consequently, breeding merlin would not be potentially susceptible to construction/operational disturbance related activities. As for all breeding species, pre-construction and construction monitoring would be undertaken so that damage/disturbance to any nests is avoided. Therefore, the magnitude of any adverse construction/operational disturbance impacts through habitat modification is considered likely to be zero.

COLLISION

7.6.83 Merlins were occasionally recorded flying through the Application Boundary. Due to over 90 % of merlin flights occurring below rotor height, there is no expected collision risk to merlin in

[72] NatureScot (2025). Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas.

the Study Area (**Technical Appendix 7.2: Collision Risk Assessment (EIAR Volume 4)**). Therefore, the magnitude of any adverse collision impacts is considered likely to be zero.

SUMMARY OF LIKELY EFFECTS ON MERLIN

7.6.84 It is considered that the overall magnitude of the combined impacts on merlin due to the construction and operational activities of the Proposed Development is likely to be negligible/zero. Although merlin is a species of high conservation importance, the likely effects are judged to be **Not Significant**, i.e. there would be no detectable national or regional population effects. Therefore, if the Proposed Development was built, the available information indicates, using the three tests, that FCS would not be affected because:

- Merlin is likely to maintain itself on a long-term basis as a viable component of its habitat in Scotland (and the Shetland NHZ);
- The natural range of merlin in Scotland (and the Shetland NHZ) would not be reduced by the Proposed Development, nor would it become likely to be reduced in the foreseeable future; and
- There would be (and would continue to be) a sufficiently large habitat area in Scotland (and the Shetland NHZ) to maintain the merlin population on a long-term basis should the Proposed Development be built.

Common gull

7.6.85 Common gull is a UK Red-listed species and therefore of high conservation importance (**Table 7.7**). The regional, national and international population estimates of this species are known (**Table 7.8**). The behavioural sensitivity of the species is considered to be low (**Table 7.9**). With recent substantial gull population declines, common gull is likely to be in Unfavourable Conservation Status nationally, within Scotland. However, at the time of writing, updated wintering gull population estimates for the UK were published[73]. This study estimated that 520,000 common gulls (95 % CI: 440,000–600,000) wintered in the UK (38 % in Scotland). The study, which compared population estimated from 20 years ago showed that whilst the common gull wintering population decreased in England during the last 20 years, it remained stable in Scotland and Wales.

LAND-TAKE

7.6.86 There were three small common gull colonies within the Study Area (**Table 7.10**; **Figure 7.12: Common Gull Colonies 2022-2023 (EIAR Volume 3a)**). The 20-55 common gull AON within these colonies represents approximately 1.2-3.3 % of the Shetland NHZ population within the Study Area. It is unclear how common gulls would respond to land-take.

7.6.87 Colony A at HU 418 768 lies in the middle of the Proposed Development, 234 m to the nearest infrastructure (a track turning head) and 294 m to the nearest turbine. Colony B at HU 433 741 lies within the Study Area but not within the Application Boundary, 1,803 m to the nearest infrastructure (track) and 2,820 m to the nearest turbine. Colony C at HU 428 738 lies within the Study Area but not within the Application Boundary, 1,459 m to the nearest infrastructure (track), 2,876 m to nearest turbine. Consequently, Colony A is the only colony potentially likely to be affected by land-take.

7.6.88 If Colony A is assumed lost to land-take, then there would be a loss of 10-25 breeding pairs of common gull. However, the highly variable numbers recorded between years and across

[73] Caulfield, E.B., Clarke, J.A., Burton, N.H.K., Boersch-Supan, P.H., Frost, T.M., Balmer, D.E and Woodward, I.D. 2026. Winter gulls in the United Kingdom: results from the 2023/24—2024/25 Winter Gull (Roost) Survey. BTO Research Report 807.

colonies (**Table 7.10**) suggests that birds switched colonies between years, meaning any birds assumed lost (via displacement caused by land-take) would not actually be 'lost' at all. Nevertheless, if the biologically unrealistic loss of Colony A were assumed, the magnitude of adverse land-take impacts from the Proposed Development on common gull would be predicted to be negligible to minor regionally, adversely affecting c. 0.6-1.5 % of the Shetland population. This predicted land-take loss is considered biologically highly unlikely, with the breeding common gulls likely to switch to other Shetland colonies, possibly including the other two unaffected Study Area colonies (B and C). Studies of common gulls have shown annual changes in selection of nesting areas e.g. because of predation pressure[74] and adverse weather[75]. Therefore, the magnitude of any adverse direct land-take impacts or indirect impacts through habitat modification is considered likely to be negligible.

CONSTRUCTION/OPERATIONAL DISTURBANCE

7.6.89 A total of 10-25 breeding pairs of common gull (AON at Colony A) could potentially be susceptible to construction/operational disturbance, but for the purpose of this assessment they have already been considered 'lost' through displacement caused by land-take and are considered likely to move to other colonies. As for all breeding species, pre-construction and construction monitoring would be undertaken so that damage/disturbance to any nests is avoided. Therefore, the magnitude of any adverse construction/operational impacts are considered likely to be negligible.

COLLISION

7.6.90 At the time of writing, a response from NatureScot was awaited on how to address the apparent error(s) in the 2024 directional flightline CRM guidance. Some of the common gull flightlines were considered directional from the point of CRM.

7.6.91 According to **Technical Appendix 7.2: Collision Risk Assessment (EIAR Volume 4)** there are no expected collisions at 99.5 % avoidance for directional flights of common gulls. Therefore, the overall collision risk is driven only by non-directional flights. This equates to one collision every 2.1 years. This overall combined metric is considered unlikely to be correct due to the apparent error in the NatureScot CRA directional flight guidance. Nevertheless, (based on this metric) the magnitude of any adverse collision impacts are considered likely to be negligible.

SUMMARY OF LIKELY EFFECTS ON COMMON GULL

7.6.92 Although common gull is a species of high conservation importance, the likely effects are judged to be **Not Significant**, i.e. there would be no detectable population level impacts on the Shetland NHZ and so the national population would not likely be significantly affected. The Proposed Development will not affect the recovery of the species' FCS, because the available information indicates, using the three tests, that FCS would not be affected because:

- Common gull is likely to maintain itself on a long-term basis as a viable component of its habitat in Scotland (and the Shetland NHZ);

[74] Nordström, M. and Korpimäki, E. 2004. Effects of island isolation and feral mink removal on bird communities on small islands in the Baltic Sea. Journal of Animal Ecology 73: 424-433.

[75] Forrester, R. and Andrews, I. (eds). 2007. The Birds of Scotland. The Scottish Ornithologists' Club (SOC), Aberlady.

- The natural range of common gull in Scotland (and the Shetland NHZ) would not be reduced by the Proposed Development, nor would it become likely to be reduced in the foreseeable future; and
- There would be (and would continue to be) a sufficiently large habitat area in Scotland (and the Shetland NHZ) to maintain the common gull population on a long-term basis should the Proposed Development be built.

7.6.93 NatureScot's response to any development proposal is guided by maintaining a viable population across the species' natural range along with maintenance of a sufficient area of habitat[76]. "*An effect should therefore be judged as of concern where it would adversely affect the existing FCS of a species or prevent a species recovering or maintaining its FCS in Scotland*". This situation does not arise for common gull with the Proposed Development.

Herring gull

7.6.94 Herring gull is a UK Red-listed species and therefore of high conservation importance (**Table 7.7**). The regional, national and international population estimates of this species are known (**Table 7.8**). The behavioural sensitivity of the species is considered to be low (**Table 7.9**). With recent substantial gull population declines, herring gull is likely to be in Unfavourable Conservation Status nationally, within Scotland. However, at the time of writing, updated wintering gull population estimates for the UK were published[77]. This study estimated that 720,000 herring gulls (95 % CI: 640,000–810,000) wintered in the UK (32 % in Scotland). The study, which compared population estimated from 20 years ago showed that no significant decline in the herring gull wintering population has taken place and that 'numbers have been broadly stable'.

LAND-TAKE

7.6.95 There was no evidence of any herring gulls breeding within the Study Area, consequently no land-take impacts are predicted.

CONSTRUCTION/OPERATIONAL DISTURBANCE

7.6.96 With no evidence of any herring gulls breeding within the Study Area, no construction or operational disturbance impacts are predicted. As for all breeding species, pre-construction and construction monitoring would be undertaken so that damage/disturbance to any nests is avoided.

COLLISION

7.6.97 At the time of writing, a response from NatureScot was awaited on how to address the apparent error(s) in the 2024 directional flightline CRM guidance. Some of the herring gull flightlines were considered directional from the point of CRM.

7.6.98 The Shetland NHZ herring gull population comprises 2,526 pairs (i.e. 5,052 adults) and whilst the number of juveniles in the population is unknown, for the purposes of this exercise it is assumed to be 25 %, i.e. an additional 1,263 individuals, and an overall total of 6,318 herring gulls at the end of the breeding season. However, this metric ignores Shetland herring gull immigration and emigration. The predicted collision mortality rates would affect both the

[76] NatureScot (2025). Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas.

[77] Caulfield, E.B., Clarke, J.A., Burton, N.H.K., Boersch-Supan, P.H., Frost, T.M., Balmer, D.E and Woodward, I.D. 2026. Winter gulls in the United Kingdom: results from the 2023/24—2024/25 Winter Gull (Roost) Survey. BTO Research Report 807.

breeding Shetland NHZ population (*argenteus*) and the migrant nominate population (*argentatus*) of herring gulls wintering and non-breeders over-summering in Shetland. There are many instances of herring gull chicks ringed in Shetland being recovered (recorded) on the north and east coasts of Mainland Scotland, east coast of England and the North Sea coasts of France, Belgium, the Netherlands and Denmark[78].

7.6.99 Consequently, with no way of establishing what proportion of herring gulls affected would be from the Shetland NHZ when compared to birds from outwith Shetland, it is difficult to predict likely collision risk effects on the Shetland NHZ. According to **Technical Appendix 7.2: Collision Risk Assessment (EIAR Volume 4)** there are no expected collisions at 99.5 % avoidance for directional flights of herring gulls. Therefore, the overall collision risk is driven only by non-directional flights. This equates to one collision every 50 years. This overall combined metric is considered unlikely to be correct due to the apparent error in the NatureScot CRA directional flight guidance. Nevertheless, (based on this metric) the magnitude of any adverse collision impacts are considered likely to be negligible.

SUMMARY OF LIKELY EFFECTS ON HERRING GULL

7.6.100 It is considered that the overall magnitude of the impacts on herring gull due to the construction and operational activities of the Proposed Development is likely to be negligible. Although herring gull is a species of high conservation importance, the likely effects are judged to be **Not Significant**, i.e. there would be no detectable national or regional population effects. Therefore, if the Proposed Development was built, the available information indicates, using the three tests, that FCS would not be affected because:

- Herring gull is likely to maintain itself on a long-term basis as a viable component of its habitat in Scotland (and the Shetland NHZ);
- The natural range of herring gull in Scotland (and the Shetland NHZ) would not be reduced by the Proposed Development, nor would it become likely to be reduced in the foreseeable future; and
- There would be (and would continue to be) a sufficiently large habitat area in Scotland (and the Shetland NHZ) to maintain the herring gull population on a long-term basis should the Proposed Development be built.

7.6.101 NatureScot's response to any development proposal is guided by maintaining a viable population across the species' natural range along with maintenance of a sufficient area of habitat[79]. "*An effect should therefore be judged as of concern where it would adversely affect the existing FCS of a species or prevent a species recovering or maintaining its FCS in Scotland*". This situation does not arise for herring gull with the Proposed Development.

Great black-backed gull

7.6.102 Great black-backed gull is a UK Red-listed species and therefore of high conservation importance (**Table 7.7**). The regional, national and international population estimates of this species are known (**Table 7.8**). The behavioural sensitivity of the species is considered to be low (**Table 7.9**). With recent substantial gull population declines, great black-backed gull is likely to be in Unfavourable Conservation Status nationally, within Scotland. However, at the

[78] Wernham, C., Toms, M., Marchant, J., Clark, J., Siriwardena, G. and Baillie, S. (eds) (2002). The Migration Atlas: Movements of the Birds of Britain and Ireland. British Trust for Ornithology. T and A.D. Poyser.

[79] NatureScot (2025). Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas.

time of writing, updated wintering gull population estimates for the UK were published[80]. This study estimated that 26,000 great black-backed gulls (95 % CI: 20,000-37,000) wintered in the UK (31 % in Scotland). The study, which compared population estimated from 20 years ago showed that no overall seasonal change in the great black-backed gull UK wintering population has taken place.

LAND-TAKE

7.6.103 Up to four pairs of breeding great black-backed gull were present within the Study Area, with two pairs present within the Application Boundary (**Figure 7.13: Great Black-backed Gull Apparently Occupied Territories 2022-2023 (EIAR Volume 3a)**). The breeding locations appeared to move from year to year (unless they were different pairs utilising different areas in different years), making predictions of land-take impacts somewhat challenging. In 2022 two pairs were present in the south of the Application Boundary, away from the Turbine Area. In 2023 two pairs were in the north of the Application Boundary, within the Turbine Area and two pairs were in the south, both lay outside of the Application Boundary.

7.6.104 Their use of completely different breeding areas between years strongly suggests that potentially suitable breeding sites are not limiting. This is unsurprising as the species is not a habitat specialist but has a strong preference for small, usually uninhabited islands, remote coasts, open, low-lying coastal grassland, cliffs, moors, wetland and buildings in urban areas[81,82].

7.6.105 Although their use of the Application Boundary was completely different between years, up to two great black-backed gull pairs bred within the Application Boundary and so might be adversely affected ('lost') by land-take. However, with the breeding locations seemingly moving annually, the likely biological scenario is that the great black-backed gulls would simply move elsewhere (as they appear to do annually), away from any areas of land-take. Therefore, the magnitude of any adverse direct land-take impacts or indirect impacts through habitat modification is considered likely to be negligible.

CONSTRUCTION/OPERATIONAL DISTURBANCE

7.6.106 Two breeding pairs of great black-backed gull could potentially be susceptible to construction/operational disturbance, but for the purpose of this assessment they have already been considered 'lost' through displacement caused by land-take and would likely move elsewhere. As for all breeding species, pre-construction and construction monitoring would be undertaken so that damage/disturbance to any nests is avoided. Therefore, the magnitude of any adverse construction/operational impacts are considered likely to be negligible.

COLLISION

7.6.107 TBA – awaiting response from NatureScot on how to address the apparent error(s) in the 2024 directional flightline CRM guidance. Some of the great black-backed gull flightlines were considered directional from the point of CRM.

[80] Caulfield, E.B., Clarke, J.A., Burton, N.H.K., Boersch-Supan, P.H., Frost, T.M., Balmer, D.E and Woodward, I.D. 2026. Winter gulls in the United Kingdom: results from the 2023/24—2024/25 Winter Gull (Roost) Survey. BTO Research Report 807.

[81] Forrester, R. and Andrews, I. (eds). 2007. The Birds of Scotland. The Scottish Ornithologists' Club (SOC), Aberlady.

[82] Burnell, D., Perkins, A., Newton, S., Bolton, M., Tierney, D. and Dunn, T. 2023. Seabirds Count: A census of breeding seabirds in Britain and Ireland (2015-2021). Lynx Nature Books.

7.6.108 The Shetland NHZ great black-backed gull population comprises 2,106 pairs (i.e. 4,212 adults) and whilst the number of juveniles in the population is unknown, for the purposes of this exercise it is assumed to be 25 %, i.e. an additional 1,053 individuals, and an overall total of 5,265 great black-backed gulls at the end of the breeding season. However, this ignores Shetland great black-backed gull immigration and emigration. Therefore, the predicted collision mortality rates would affect both the Shetland NHZ breeding population and migrant populations of great black-backed gulls wintering and non-breeders over-summering in Shetland. There are many instances of great black-backed gull chicks ringed in Shetland being subsequently recovered (recorded) on the north and east coasts of Mainland Scotland, east coast of England and the North Sea coasts of France, Belgium and the Netherlands[83].

7.6.109 Consequently, with no way of establishing what proportion of great black-backed gulls affected would be from the Shetland NHZ verses birds from outwith Shetland, it is difficult to predict likely collision risk effects from the Proposed Development on the Shetland NHZ. According to **Technical Appendix 7.2: Collision Risk Assessment (EIAR Volume 4)** there are no expected collisions at 99.5 % avoidance for directional flights of great black-backed gulls. Therefore, the overall collision risk is driven only by non-directional flights. This equates to one collision every 16.7 years. This overall combined metric is considered unlikely to be correct due to the apparent error in the NatureScot CRA directional flight guidance. Therefore, (based on this metric) the magnitude of any adverse collision impacts are considered likely to be negligible.

SUMMARY OF LIKELY EFFECTS ON GREAT BLACK-BACKED GULL

7.6.110 It is considered that the overall magnitude of the impacts on great black-backed gull due to the construction and operational activities of the Proposed Development is likely to be negligible. Although great black-backed gull is a species of high conservation importance, the likely effects are judged to be **Not Significant**, i.e. there would be no detectable national or regional population effects. Therefore, if the Proposed Development was built, the available information indicates, using the three tests, that FCS would not be affected because:

- Great black-backed gull is likely to maintain itself on a long-term basis as a viable component of its habitat in Scotland (and the Shetland NHZ);
- The natural range of great black-backed in Scotland (and the Shetland NHZ) would not be reduced by the Proposed Development, nor would it become likely to be reduced in the foreseeable future; and
- There would be (and would continue to be) a sufficiently large habitat area in Scotland (and the Shetland NHZ) to maintain the great black-backed gull population on a long-term basis should the Proposed Development be built.

Arctic tern

7.6.111 Arctic tern is a UK Red-listed species and therefore of high conservation importance (**Table 7.7**). The regional, national and international population estimates of this species are known (**Table 7.8**). The behavioural sensitivity of the species is considered to be moderate (**Table 7.9**). With recent apparent population declines, Arctic tern is likely to be in Unfavourable Conservation Status nationally, within Scotland.

[83] Wernham, C., Toms, M., Marchant, J., Clark, J., Siriwardena, G. and Baillie, S. (eds) (2002). The Migration Atlas: Movements of the Birds of Britain and Ireland. British Trust for Ornithology. T and A.D. Poyser.

LAND-TAKE

7.6.112 There was no evidence of any Arctic terns breeding within the Study Area, consequently no land-take impacts are predicted.

CONSTRUCTION/OPERATIONAL DISTURBANCE

7.6.113 With no evidence of any Arctic terns breeding within the Study Area, no construction or operational disturbance impacts are predicted. As for all breeding species, pre-construction and construction monitoring would be undertaken so that damage/disturbance to any nests is avoided, consequently no construction/operational impacts are predicted.

COLLISION

7.6.114 Arctic terns regularly flew across the south part of the Study Area, in a flight corridor between Tofts Voe/Firths Voe and Garths Voe, in south west/west direction in 2022, where they were observed washing in the freshwater at the mouth of the Burn of Laxobigging, near Graven. A single flightline was recorded once within the Turbine Area, but no others were recorded, so CRA was not undertaken. The Tofts Voe/Firths Voe and Garths Voe flight corridor was deliberately avoided by creation of a 'no turbine development zone' south of the Crooksetter Hill. As a consequence, the magnitude of collision risk for Arctic tern is predicted to be negligible.

SUMMARY OF LIKELY EFFECTS ON ARCTIC TERN

7.6.115 It is considered that the overall combined magnitude of the impacts on Arctic tern due to the construction and operational activities of the Proposed Development is likely to be negligible. Although Arctic tern is a species of high conservation importance, the likely effects are judged to be **Not Significant**, i.e. there would be no detectable national or regional population effects. Therefore, if the Proposed Development was built, the available information indicates, using the three tests, that FCS would not be affected because:

- Arctic tern is likely to maintain itself on a long-term basis as a viable component of its habitat in Scotland (and the Shetland NHZ);
- The natural range of Arctic tern in Scotland (and the Shetland NHZ) would not be reduced by the Proposed Development, nor would it become likely to be reduced in the foreseeable future; and
- There would be (and would continue to be) a sufficiently large habitat area in Scotland (and the Shetland NHZ) to maintain the Arctic tern population on a long-term basis should the Proposed Development be built.

7.6.116 NatureScot's response to any development proposal is guided by maintaining a viable population across the species' natural range along with maintenance of a sufficient area of habitat[84]. "*An effect should therefore be judged as of concern where it would adversely affect the existing FCS of a species or prevent a species recovering or maintaining its FCS in Scotland*". This situation does not arise for Arctic tern with the Proposed Development.

Arctic skua

7.6.117 Arctic skua is a UK Red-listed species and therefore of high conservation importance (**Table 7.7**). The regional, national and international population estimates of this species are known (**Table 7.8**). The behavioural sensitivity of the species is considered to be moderate (**Table**

[84] NatureScot (2025). Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas.

7.9). With recent population declines, Arctic skua is likely to be in Unfavourable Conservation Status nationally, within Scotland. However, since 2022 H5N1 bird flu outbreak resulted in huge population declines in predatory great skuas, there are tentative signs of increases in breeding Arctic skuas in some parts of Shetland (*personal observation*), although this has yet to be quantified.

LAND-TAKE

7.6.118 Arctic skuas were recorded breeding within the Study Area during surveys in all years; three AOT in 2022 and three AOT in 2023 (**Figure 7.14 Arctic Skua Apparently Occupied Territories 2022-2023 (EIAR Volume 3a)**). In 2022, one AOT was recorded within the Application Boundary on Hill of Crooksetter, one was south of Loch of Mioness outside of the Application Boundary and another was near Loch of Bordigarth, also outside of the Application Boundary. In 2023, two of the three AOT were in broadly the same locations, one was south of Loch of Mioness, one was between Loch of Bordigarth and Sand Loch, but a new pair was located within the Application Boundary, underneath what would be Turbine 6.

7.6.119 The two pairs outside of the Application Boundary are considered unlikely to be affected by land-take, but a third pair present in 2023 would very likely be lost to land-take as the AOT and territory centre lay directly underneath proposed Turbine 6. During 2024 checks to update the baseline on Schedule 1 breeding species, an additional (new) pair of Arctic skuas was noted. There were two pairs south/south west of Loch Mioness (one pair present previously) outside of the Application Boundary (not illustrated). For the purpose of this assessment, one pair is assumed lost through land-take. As a result, the magnitude of land-take impacts from the Proposed Development on Arctic skua are predicted to be minor.

CONSTRUCTION/OPERATIONAL DISTURBANCE

7.6.120 One breeding pair of Arctic skua could potentially be susceptible to construction/operational disturbance, but for the purpose of this assessment it has already been considered 'lost' through displacement caused by land-take. As for all breeding species, pre-construction and construction monitoring would be undertaken so that damage/disturbance to any nests is avoided. As a result, the magnitude of construction/operational impacts from the Proposed Development on Arctic skua are predicted to be zero.

COLLISION

7.6.121 At a 99.5 % avoidance rate, the estimated collision rate was 0.09 collisions per year, equivalent to one bird strike every 11.1 years (**Technical Appendix 7.2: Collision Risk Assessment (EIAR Volume 4)**). The associated uncertainty ranged from 0 to 0.26 collisions per year (one bird strike every 3.8 years), reflecting a 95% confidence interval with an uncertainty range of 185 % (truncated at zero to maintain biological realism). The estimated collision risk (excluding avoidance assumptions) exhibited a substantial uncertainty range of 185%. This large spread of values primarily stems from the diversity of areal flight density estimates presented in **Technical Appendix 7.2: Collision Risk Assessment (EIAR Volume 4)**, which result from real heterogeneity in Arctic skua flight activity, such as many true absences, rather than from measurement errors or insufficient sampling. As a result, the magnitude of collision impacts from the Proposed Development on Arctic skua are predicted to be negligible.

SUMMARY OF LIKELY EFFECTS ON ARCTIC SKUA

7.6.122 The Proposed Development construction and operational activities are likely to impact on one breeding pair of Arctic skua through land-take. Using the Shetland NHZ metric of 295 pairs,

the theoretical loss of one pair of Arctic skua (assuming they do not move elsewhere; an unlikely assumption given some pairs use different territories annually strongly suggesting potentially suitable breeding habitat is not a limiting factor) as a result of land-take would result in a reduction in the Shetland NHZ population of 0.3 %. Therefore, under this worst-case (not likely) scenario, the magnitude of adverse impacts of land-take on Arctic skua would be negligible. Predicted collision risk is likely to result in the death of one Arctic skua every 11.1 years, so up to c. four deaths would be likely during the lifetime of the Proposed Development.

7.6.123 It is considered that the overall combined magnitude of the impacts on Arctic skua due to the construction and operational activities of the Proposed Development is likely to be minor. Although Arctic skua is a species of high conservation importance, the likely effects are judged to be **Not Significant**, i.e. there would be no detectable population level impacts and so the Shetland NHZ (and national population) would not likely be significantly affected. Therefore, if the Proposed Development is built, the available information indicates, using the three tests, that FCS would not be affected because:

- Arctic skua would be likely to maintain itself on a long-term basis as a viable component of its habitat nationally in Scotland (and the Shetland NHZ);
- The natural range of Arctic skua in Scotland (and the Shetland NHZ) would not be reduced by the Proposed Development; and
- There would be (and would continue to be) a sufficiently large habitat area in Scotland (and the Shetland NHZ) to maintain the Arctic skua population on a long-term basis should the Proposed Development be built.

7.6.124 NatureScot's response to any development proposal is guided by maintaining a viable population across the species' natural range along with maintenance of a sufficient area of habitat[85]. "*An effect should therefore be judged as of concern where it would adversely affect the existing FCS of a species or prevent a species recovering or maintaining its FCS in Scotland*". This situation does not arise for Arctic skua with the Proposed Development.

Great skua

7.6.125 Great skua is a UK Red-listed species and therefore of high conservation importance (**Table 7.7**). The regional, national and international population estimates of this species are known (**Table 7.8**). The behavioural sensitivity of the species is considered to be moderate (**Table 7.9**). With recent substantial population declines as a result of the H5N1 bird flu outbreak, great skua is likely to be in Unfavourable Conservation Status nationally, within Scotland.

LAND-TAKE

7.6.126 There was no evidence of breeding great skua within the Study Area during any surveys, consequently no land-take impacts are predicted.

CONSTRUCTION/OPERATIONAL DISTURBANCE

7.6.127 There was no evidence of breeding great skua within the Study Area during any surveys. Consequently, breeding great skuas would not be potentially susceptible to construction/operational disturbance related activities. As for all breeding species, pre-construction and construction monitoring would be undertaken so that damage/disturbance

[85] NatureScot (2025). Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas.

to any nests is avoided. Consequently, no construction/operational disturbance impacts are predicted.

COLLISION

7.6.128 At a 99.5% avoidance rate, the estimated collision rate was 0.03 collisions per year, equivalent to one bird strike every 33.3 years (**Technical Appendix 7.2: Collision Risk Assessment (EIAR Volume 4)**). The associated uncertainty ranged from 0 to 0.13 collisions per year (one bird strike every 7.7 years), reflecting a 95% confidence interval with an uncertainty range of 329 % (truncated at zero to maintain biological realism). The estimated collision risk (excluding avoidance assumptions) exhibited a substantial uncertainty range of 329%. This large spread of values primarily stems from the diversity of areal flight density estimates presented in **Technical Appendix 7.2: Collision Risk Assessment (EIAR Volume 4)**, which result from real heterogeneity in great skua flight activity, such as many true absences, rather than from measurement errors or insufficient sampling. As a result, the magnitude of collision impacts from the Proposed Development on great skua are predicted to be negligible.

SUMMARY OF LIKELY EFFECTS ON GREAT SKUA

7.6.129 The Proposed Development construction and operational activities are likely to impact on no breeding pairs of great skua through land-take or construction/operational disturbance. During the 40-year life-time of the Proposed Development, a single great skua is predicted to be killed by collision. Therefore, the magnitude of combined adverse impacts of land-take, construction/operational and collision on great skua would likely be negligible.

7.6.130 Although great skua is a species of high conservation importance, the likely effects are judged to be **Not Significant**, i.e. there would be no detectable population level impacts and so the Shetland NHZ would not likely be significantly affected. Therefore, if the Proposed Development is built, the available information indicates, using the three tests, that FCS would not be affected because:

- Great skua would be likely to maintain itself on a long-term basis as a viable component of its habitat nationally in Scotland (and the Shetland NHZ);
- The natural range of great skua in Scotland (and the Shetland NHZ) would not be reduced by the Proposed Development; and
- There would be (and would continue to be) a sufficiently large habitat area in Scotland (and the Shetland NHZ) to maintain the great skua population on a long-term basis should the Proposed Development be built.

7.6.131 NatureScot's response to any development proposal is guided by maintaining a viable population across the species' natural range along with maintenance of a sufficient area of habitat[86]. "*An effect should therefore be judged as of concern where it would adversely affect the existing FCS of a species or prevent a species recovering or maintaining its FCS in Scotland*". This situation does not arise for great skua with the Proposed Development.

Cumulative Assessment

7.6.132 NatureScot provide guidance on cumulative impact assessment, which was updated after the Proposed Development survey work was completed[87]. According to NatureScot, cumulative

[86] NatureScot (2025). Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas.

[87] NatureScot (2025). Assessing the cumulative impacts of onshore wind farms on birds.

impacts are "*Impacts that result from incremental changes case by other past, present or reasonably foreseeable actions together with the project*". The nature of these may be additive, antagonistic or synergistic:

- Additive: where combined effects are equivalent to the simple summation of the individual effects.
- Antagonistic: the cumulative impact is less than the sum of the individual effects.
- Synergistic: the cumulative impact is greater than the sum of the individual effects.

7.6.133 While antagonistic or synergistic effects may occur, the approach adopted in the NatureScot guidance is a simple additive model which sums impacts from different developments. NatureScot note that "*summing impacts can, however, lead to individual errors being compounded and, in some cases, correction may be needed when bird populations are small*". Where a cumulative impact of national or regional significance is possible NatureScot is likely to require population viability analyses to be undertaken.

7.6.134 According to NatureScot, the scale at which cumulative impacts should be assessed is nationally but noting that this should be assessed regionally where regional impacts have national implications (for example where a specific region holds the majority of the national population). NatureScot's prime concern is to maintain the conservation status of a relevant species' population size, population trend and its natural range within Scotland, i.e. whether or not the impact of the development proposal raises issues of national interest (using the concept of FCS) and that of the relevant NHZ (NHZ 1 – Shetland in this case).

7.6.135 NatureScot guidance[88] states that "*the predicted impacts of the development in question, along with those from any relevant developments nearby, should be listed in a table or spreadsheet so that the cumulative impact(s) can be calculated. Each table should include a brief overview or heading stating the primary development under discussion, the species to which it relates (with a separate table or worksheet completed for each species), the NHZ that encompasses the development site and the names of any designated sites of relevance. The body of the table or spreadsheet should comprise information about any relevant developments to be included in the cumulative assessment, with sites listed on separate rows of the table*".

7.6.136 NatureScot typically provides a spreadsheet (and relevant bird data) for the assessment of cumulative impacts of wind farms on designated sites and their qualifying features. This was requested from NatureScot on 10/03/26, however was unavailable. Consequently, Alba Ecology has produced a spreadsheet (**Technical Appendix 7.4: Cumulative Assessment Spreadsheet (EIAR Volume 4)**) in the manner NatureScot usually provide elsewhere and has populated it with publicly accessible metrics from the relevant development EIAR chapters.

7.6.137 There are a number of severe limitations associated with cumulative assessment which need to be carefully considered. The limitations likely to affect the cumulative assessment of this Proposed Development are as follows:

- Not all wind farm EIAR data is within the public domain. For example, in terms of NHZ 1 - Shetland, no publicly available data is available for Burradale Wind Farm or the Luggies Knowe Phase 1 Wind Turbine Project Environmental Statements.
- Assessments made in different time periods are informed by different published research, so early (older) predicted effects may not have benefitted from up-to-date research into

[88] NatureScot (2025). Assessing the cumulative impacts of onshore wind farms on birds.

the effects of land-take, construction/operational disturbance and/or collision risk. This is most obvious in the different avoidance rates used on different schemes for the purpose of CRM but can influence assumptions about displacement also. For example, in **Technical Appendix 7.4: Cumulative Assessment Spreadsheet (EIAR Volume 4)** four different avoidance rates have been used to predict collision risk effects of wind farm developments on red-throated divers in Shetland: 98 %, 99 %, 99.5 % and 99.8 %. The Garth Wind Farm EIAR (full details of which are no longer publicly available) predicted one red-throated diver collision every 10-11 years[89]. However, this CRA metric was based on an old CRA avoidance rate of 95 %. If the red-throated diver data were reanalysed with the current NatureScot avoidance rate of 99.5 % much lower diver collision mortality would be predicted (indeed, likely to be none within the life-time of the Garth Wind Farm given current 99.5 % avoidance rate). Therefore, it is simply not appropriate to add these together (as per NatureScot guidance), when predicted effects have been calculated using avoidance rates of different orders of magnitude.

- The results of up-to-date post-construction ornithological monitoring for wind farms in Shetland are invariably not publicly available and so it is not possible to determine if EIAR predicted effects have been realised or not, i.e. are they higher or lower than predicted?
- The NatureScot cumulative impact assessment guidance[90] is against Scottish Government policy e.g. NPF4 (and arguably the EIA Regulations), because the guidance does not explain or advise how to consider beneficial cumulative effects, something that is now required. Consequently, Alba Ecology considers the current NatureScot cumulative impact assessment guidance to be inadequate, as it only considers potential adverse effects and ignores potential beneficial effects.
- Without exception, most wind farm sites in Shetland that Alba Ecology has been involved with have undertaken or will undertake substantial biodiversity enhancement and habitat management measures in accordance with EIA policy, best practice guidance and planning conditions. Given that the results of post-construction monitoring are not publicly available, should the predicted beneficial effects of relevant biodiversity enhancement and habitat management from within the EIAR simply be added together to counter-balance the NatureScot additive approach to predicted negative effects. By way of example, if ten dry and former diver lochans are restored and rewetted (guaranteed via a planning condition attached to delivering the biodiversity enhancement and habitat management plan), then with a known large number of non-breeding divers in Shetland, there is uncertainty as to whether all or half of the ten restored lochans would be used. If realised, either option would increase the Shetland diver population >1 %, whilst more than offsetting any predicted cumulative negative effects on red-throated divers.

7.6.138 Recognising the severe limitations of using cumulative effects data from other EIARs, **Table 7.12** nevertheless provides a summary of predicted cumulative effects for wind farms in Shetland where publicly available data is still available: Viking, Beaw Field, Mossy Hill and Energy Isles (**Technical Appendix 7.4: Cumulative Assessment Spreadsheet (EIAR Volume 4)**).

7.6.139 There are **No Likely Adverse Significant Cumulative Effects** with the addition of the Proposed Development effects to those combined with other wind farm developments in NHZ

[89] Incidentally, the EIAR for Garth Wind Farm is no longer readily available in the public domain and source for this reported metric was the Beaw Field Wind Farm EIAR.
[90] NatureScot (2025). Assessing the cumulative impacts of onshore wind farms on birds.

1. Rounding up NHZ 1 cumulative land-take/displacement losses from **Table 7.12** results in the following estimated adverse cumulative effects:

- Red-throated diver – no likely significant change in land-take/displacement with a maximum 4 pairs lost (0.98 % of NHZ 1 population; 0.32 % of Scottish population), and no likely significant change in collision risk with addition of 4 individuals lost per annum with the Proposed Development.
- Golden plover – no likely significant change in land-take/displacement with a maximum 24 pairs lost (0.42 % of NHZ population; 0.16 % of Scottish population), and no likely significant change in collision risk with a maximum of 20 individuals lost per annum with the Proposed Development.
- Dunlin - no likely significant change in land-take/displacement with a maximum 24 pairs lost (1.17 % of NHZ population; 0.30 % of Scottish population), and no likely significant change in collision risk with 1 individual lost per annum with the Proposed Development.
- Lapwing - no likely significant change in land-take/displacement with a maximum 6 pairs lost (0.35 % of NHZ population; 0.008 % of Scottish population), and no likely significant change in collision risk with 1 individual lost per annum with the Proposed Development.
- Redshank - no likely significant change in land-take/displacement with a maximum 3 pairs lost (0.29 % of NHZ population; 0.03 % of Scottish population), and no likely significant change in collision risk with 0 individuals lost per annum with the Proposed Development.
- Whimbrel - no likely significant change in land-take/displacement with a maximum of 3 pairs lost (0.82 % of NHZ population; 0.79 % of Scottish population), and no likely significant change in collision risk with 2 individuals lost per annum with the Proposed Development.
- Curlew - no likely significant change in land-take/displacement with a maximum of 54 pairs lost (1.28 % of NHZ population; 0.09 % of Scottish population), and no likely significant change in collision risk with 12 individuals lost per annum with the Proposed Development.
- It is not possible to meaningfully report on potential cumulative impacts on any gull species because the reporting of potential impacts on gulls has only recently begun to be recommended by NatureScot, so several previous EIAs did not report on gulls e.g. Viking, Beaw Field and Energy Isles. Additionally, the gull populations in Shetland are highly mixed with immigration and emigration from numerous north west European countries, making NHZ population estimates effectively redundant.
- Arctic skua - no likely significant change in land-take/displacement with a maximum of 5 pairs lost (1.70 % of NHZ population; 0.69 % of Scottish population), and no likely significant change in collision risk with 2 individuals lost per annum with the Proposed Development.

7.6.140 As noted, the above list summarises the potential adverse cumulative effects within NHZ 1. It does not consider potential beneficial cumulative effects, such as those delivered through targeted biodiversity enhancement and habitat management plans associated with all the cumulative developments considered. All the wind farms in NHZ 1 have had substantial packages of species action and habitat restoration required through planning conditions and any consideration of cumulative effects should account for this.

7.6.141 For example, Beaw Field Wind Farm Outline Habitat Management Plan (OHMP) provides details of red-throated diver lochan enhancement measures. The main aim of which is to "*create conditions on former lochans on Yell conducive to the enhancement of habitat and restoration*

of breeding red-throated divers. Over recent decades many diver breeding lochans have been lost due to overgrazing and erosion of surrounding peat in Shetland. The overgrazing and erosion is caused when the action of sheep (through trampling and grazing) opens up one or more gaps or gullies through which the lochan water drains out. The result is that several formerly suitable red-throated diver lochans on Yell have either dried out or become too shallow to be used by nesting divers in recent years. Six potentially suitable candidate lochans in southern Yell have been identified for restoration work. Landowner liaison has taken place and long-term agreements (for the life-time of the Beaw Field Wind Farm) secured for the planned conservation work. Given the large number of non-breeding red-throated divers within the Shetland population and the restoration lochan locations (in areas heavily used by breeding and non-breeding red-throated divers) it is anticipated that most, perhaps all, of the six lochans will be regularly used for breeding".

7.6.142 Assuming this happens, then the Beaw Field Wind Farm would deliver six new breeding pairs into the Shetland red-throated diver population in a NHZ where adverse cumulative effects on wind farms are predicted to result in the loss of four pairs. Similar works are also currently being developed on Viking Wind Farm. Without NatureScot's cumulative effects guidance being updated, it is difficult to know how to account for these beneficial cumulative effects, which remain unquantified, but which need to be considered to comply with NPF4 and the EIA Regulations. An update in the cumulative effects guidance would therefore be helpful, specifically on how to account for potentially beneficial effects cumulatively.

Table 7.12: Summary of Cumulative Effects - negative effects only

Species	A. No. of pairs lost to land - take/displacement from other wind farms*	B. No. of individuals lost to collision per annum (p.a.) - other wind farms**	C. No. of pairs lost to land-take/displacement Neshion Energy Park	D. No. of individuals lost to collision p.a. – Neshion Energy Park	Combined total lost to land-take/displacement = A + C	Combined total lost to collision p.a. = B + D
Red-throated diver	3.6	4.25-4.38	0	0.06	3.6	4.32-4.44
Golden plover	16.2-21.9	17.98-20.13	1-2	0.24	17.2-23.9	18.22-20.37
Dunlin	21.3-24.1	1.1	1-2	0	22.3-26.1	1.10
Lapwing	5.5	0-0.01	0	0.56	5.5	0.57
Redshank	0.8-1.6	0	1	0.05	1.8-2.6	0.05
Whimbrel	1.8	2.12	1	0.28	2.8	2.4
Curlew	49.9	9.0-10.06	4	1.63	53.9	10.63-11.69
Common gull	0	0	10-25	0.48	10-25	0.48
Herring gull	0	0.40-1.19	0	0.02	0	0.42-1.21
Great black-backed gull	0	0.77-2.74	2	0.06	2	0.83-2.80
Arctic skua	4.08	1.90-2.03	1	0.09	5.08	1.99-2.12

*** Where land-take and operational disturbance metrics are quoted separately in the EIAR they combined for the purpose of this table. It is recognised that a bird cannot be both lost to land-take and also then separately lost through displacement. In some EIARs it is not clear how these are predicted effects differentiated and so no attempt had been made to do this here. This potentially results in an over-estimation of predicted negative effects by double-counting. ** Where multiple avoidance rates are used in the EIAR, the closest one to the current 2026 avoidance rate is used.**

7.7 Additional (Secondary) Mitigation

7.7.1 Additional (secondary) mitigation comprises site-specific mitigation which has been included to reduce the magnitude of impact/significance of effect identified through the EIA.

7.7.2 With the full implementation of proposed embedded mitigation measures including avoidance and minimisation through inbuilt design, plus the full implementation of standard (tertiary) mitigation measures including the CEMP, there are no likely significant negative or adverse effects predicted for any potentially important ornithological receptors and so a description of the measures envisaged to provide compensation is not required to be provided as part of the EIAR for the Proposed Development under the EIA Regulations.

7.8 Assessment of Residual Effects

7.8.1 With the implementation of proposed mitigation measures, there are no likely significant residual adverse effects associated with construction or operation predicted for any potentially important ornithological receptors and so offset/compensation is not necessary for the Proposed Development. Residual beneficial effects from the full implementation of the OBEHMP are predicted.

7.8.2 The following (**Table 7.13**) provides a summary of the conclusions of the impact assessment with respect to the key important ornithological receptors taking into consideration embedded and additional mitigation/enhancement measures.

Table 7.13: Summary of Residual Effects

Receptor	Likely significance	Work phase
Designated site features	None for all statutory designated site features.	Construction
Designated site features	None for all statutory designated site feature.	Operation
Wider countryside birds	None for all wider countryside birds	Construction
Wider countryside birds	None for all wider countryside birds	Operation

7.9 Enhancement

7.9.1 The OBEHMP (**Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**) identifies six main enhancement objectives to be implemented within the Study Area, where further information is provided. Five of these objectives are likely to benefit priority bird species:

- Objective 1: Peatland restoration;
- Objective 2: Reduce grazing pressure;
- Objective 3: Creating and strengthening nature networks;
- Objective 5: Removal of waste along the coastline; and
- Objective 6: Target Species Action.

7.9.2 Each of these objectives would benefit ornithology and biodiversity in specific, measurable and targeted ways to enhance the wider ecosystem. They are all linked to relevant biodiversity enhancement policies in NPF4 (Policy 3)[91] and SIC Advice Note 14[92].

7.10 Monitoring

7.10.1 Monitoring would include:

- A pre-construction breeding bird survey.
- An ECoW being present during construction work ensuring avoidance and minimisation of impacts on ornithological features such Schedule 1 breeding birds.
- Regular, i.e. weekly and potentially daily, checks for breeding birds during construction.
- Post-construction breeding birds monitoring. Typically, this should take place after year one, year three, year five and then every five years.

7.11 Summary of Potential Significant Effects

7.11.1 This assessment does not predict any likely significant adverse ornithological residual effects associated with the Proposed Development (**Table 7.14**).

Table 7.14: Summary of Potential Significant Effects

Receptor	Potential Impact	Likely Significance of Effect	Mitigation Proposed	Residual Effect	Monitoring
Construction					
Designated Sites	Direct land-take	No Likely Significant Effect	None	Not Significant	None
	Indirect impacts				
Wider countryside birds	Land-take	No Likely Significant Effect	None	Not Significant	None
	Disturbance				
Operation					
Designated Sites	Indirect impacts	No Likely Significant Effect	None	Not Significant	None
Wider countryside birds	Disturbance	No Likely Significant Effect	None	Not Significant	None
	Collision				

[91] Scottish Government (2023). National Planning Framework 4.

[92] SIC Advice Note 14: Delivery of Biodiversity Enhancement on Local Developments.

8 Hydrology, Hydrogeology, Geology and Soils

8.1 Executive Summary

8.1.1 This chapter examines the likely significant effects on hydrological, hydrogeological, geological and soil receptors related to the Proposed Development. Primary objectives include establishing the baseline environmental conditions, establishing assessment methodologies, and determining the significance of potential impacts in the context of key legislation and guidelines for the protection of the water and geological environment in Scotland.

8.1.2 Receptors of focus within the water environment include watercourses, water supplies including private and public water supplies, lochs and groundwater. Main receptors for geology and soils are primarily focussed on peat and carbon rich soils.

8.1.3 Potential impacts during construction are associated with temporary alterations to surface water flow pathways, increased sedimentation and erosion, potential for effects on carbon rich soils and deep peat, including peat landslide effects, and the risk of accidental pollution arising from earthworks, material storage, and construction activities. During operation, potential effects are limited to minor changes in surface runoff characteristics and localised erosion associated with hardstanding areas and site drainage infrastructure.

8.1.4 Baseline conditions identify the presence of onsite surface water features including the Aywick Burn, Burn of Toft, and ephemeral streams, and provides context of surrounding controlled waters and proximate receptors including designated sites.

8.1.5 Peat surveys were carried out at the Site including peat depth probing and coring. A combined total of 3,242 peat depth probes were taken across the Site with the majority concentrated in areas of the Proposed Development. A total of 12 peat core samples were taken and analysed at selected locations.

8.1.6 The peat depth survey results indicate the Site to be predominately underlain by areas of deep peat (74% of peat depth probes recorded peat depths greater than 1 m). For this reason, it has not been possible to avoid areas of deep peat (defined as soil with peat >1m) in the siting of the Proposed Development.

8.1.7 The peatland at the Site was found to be predominantly modified or actively eroding with evidence of drainage, grazing, peat erosion, and peat cuttings. Smaller areas of near natural peatland were identified which have been avoided.

8.1.8 The report outlines standard (tertiary) mitigation measures to ensure reduced disruption to existing hydrological systems, including a Construction Environmental Management Plan (CEMP), Sustainable Drainage Systems (SuDS), pollution prevention protocols, which would be developed in a manner consistent with the scope and content of the CEMP. The chapter is further supported by technical appendices assessing the potential for impacts to Groundwater Dependent Terrestrial Ecosystems (GWDTE) (**Technical Appendix 8.2: GWDTE Assessment (Environmental Impact Assessment Report (EIAR) Volume 4)**) and a Watercourse Crossing Assessment (**Technical Appendix 8.3: Watercourse Crossing Assessment (EIAR Volume 4)**).

8.1.9 The report outlines mitigation measures to reduce the potential effects on peat and carbon rich soils, supported by a number of technical appendices including **Technical Appendix 8.4: Peat Depth Report, Technical Appendix 8.5: Outline Peat Management Plan** and **Technical Appendix 8.6: Peat Landslide Hazard Risk Assessment**.

8.1.10 Potential cumulative effects from other operational and consented wind farms and energy infrastructure developments in the surrounding area were also considered. Due to the limited hydrological connectivity between sites and the implementation of consistent good practice and embedded mitigation, no significant cumulative impacts on hydrology or hydrogeology are anticipated.

8.1.11 Overall, the EIA concludes that, with the proposed embedded, standard and additional mitigation measures, the Proposed Development would not result in significant adverse effects on hydrology, hydrogeology, geology and peat resources.

8.2 Introduction

8.2.1 The hydrology and hydrogeology assessment has been carried out by Kieran Renton and Jo Thorp of Ramboll UK Limited (Ramboll). Kieran Renton (MSc, GradCIWEM) has two years' experience of hydrological assessment for onshore wind farms and energy infrastructure. Jo Thorp (MSc, CIWEMM) has eight years' experience of hydrological and hydrogeological assessment for onshore wind farms and energy infrastructure.

8.2.2 The geological assessment has been carried out by Jeff Turner, Senior Managing Consultant and Director at Ramboll. Jeff is a Chartered Environmentalist and member of the Society for the Environment, Institute of Environmental Science (IES), and Institute of Sustainability and Environmental Professionals (ISEP) (formerly Institute of Environmental Management and Assessment (IEMA) (CEnv, MIEnvSc, PISEP, BSc (Hons)). Jeff has over 25 years' experience in the co-ordination and management of EIAs, including those for renewable energy developments. As part of this experience, Jeff has been responsible for managing the potential effects of wind farm infrastructure on peat and carbon rich soils, including the identification of suitable mitigation measures to minimise the effects from development. Jeff has been supported by Ramboll geotechnical and environmental consultants specialising in geology and soils.

8.2.3 This chapter considers the likely significant effects on Hydrology, Hydrogeology, Geology and Soils associated with the construction and operation of Neshion Energy Park ('the Proposed Development').

8.2.4 The Proposed Development is a renewable energy development comprised of up to eight wind turbines, a Battery Energy Storage System (BESS) and associated infrastructure adjacent to Sullom Voe Oil Terminal (SVT) and the Shetland Gas Plant in Shetland, Scotland. The assessment is based on the Proposed Development as described in **Chapter 2: Proposed Development (EIAR Volume 2)**.

8.2.5 The specific objectives of the chapter are to:

- describe the hydrological, hydrogeological and geological baseline;
- describe the assessment methodology and significance criteria used in completing the impact assessment;
- describe the potential effects, including direct, indirect and cumulative effects;
- describe the mitigation measures proposed to address likely significant effects; and
- assess the residual effects remaining following the implementation of mitigation.

8.2.6 This chapter is supported by the following figures and technical appendices:

- Volume 3a: Figures

  - **Figure 8.1: Surface Water Features;**
  - **Figure 8.2: Water Resources**;
  - **Figure 8.3: SEPA River Flood Risk Mapping**;
  - **Figure 8.4: SEPA Surface Water** and **Small Watercourse Flood Risk Mapping**;
  - **Figure 8.5: Superficial Geology**;
  - **Figure 8.6: Bedrock Geology**;
  - **Figure 8.7: SNH Carbon** and **Peatland Map 2016 Extract**;
  - **Figure 8.8: Habitats with the Potential to be Groundwater Dependent Terrestrial Ecosystems - National Vegetation Classification**; and
  - **Figure 8.9: Peat Depth Contour Plan**.
- Volume 4: Technical Appendices
  - **Technical Appendix 8.1: Assessment Methodology**;
  - **Technical Appendix 8.2: Groundwater Dependant Terrestrial Ecosystems (GWDTE) Assessment**;
  - **Technical Appendix 8.3: Watercourse Crossing Assessment;**
  - **Technical Appendix 8.4: Peat Depth Survey Results**;
  - **Technical Appendix 8.5: Outline Peat Management Plan**; and
  - **Technical Appendix 8.6: Peat Landslide Hazard Risk Assessment**.

8.2.7 Figures and technical appendices are referenced in the text where relevant.

8.3 Assessment Methodology

Overview

8.3.1 The hydrology, hydrogeology, geology and soils assessment methodology is detailed in **Technical Appendix 8.1: Assessment Methodology (EIAR Volume 4)**.

8.3.2 Where applicable, the assessment is presented with reference to specific 'areas' of the Site within the Site Boundary, as described in **Chapter 2: Description of Proposed Development (EIAR Volume 2)**.

Scope of Assessment

Potential Impacts Scoped In

8.3.3 This chapter considers the potential effects of the Proposed Development on the hydrological, hydrogeological, geological, and soil characteristics of the Proposed Development.

8.3.4 This chapter considers the effects as result of the Proposed Development on:

- Water quality (including both surface water and groundwater bodies) and assessment of the impacts from pollution.
- Flood risk; both risk to the Proposed Development and the potential for direct and indirect impacts of the Proposed Development on off-site flood risk.
- Water resources; impacts on flow regimes and the geomorphological characteristics of watercourses as a result of proposed watercourse crossings.
- Potential for effects on hydrology or hydrogeology to lead to secondary effects on Groundwater Dependent Terrestrial Ecosystems (GWDTE). It is noted, however, that the ecology or biodiversity effects (e.g., on sensitive habitats) are captured in **Chapter 6: Ecology (EIAR Volume 2)**.

- Potential for effects on carbon rich soils and deep peat, including potential for peat landslide effects.

8.3.5 The chapter assesses the cumulative effects as arising from the addition of the Proposed Development to other developments, which are the subject of a valid planning application (either consented or in planning). Operational and under construction are considered as part of the baseline. Developments close to the end of their operational life are included as part of the baseline to present a 'worst case scenario'.

8.3.6 Potential cumulative construction and operational effects with regard to geology and soils have been scoped out of assessment on the basis that no potential for significant cumulative effects have been identified. It is also considered that the Site is not hydrologically connected or influenced by the cumulative projects within the Study Area.

8.3.7 The assessment is based on the Proposed Development as described in **Chapter 2: Description of Proposed Development (EIAR Volume 2)** and takes into account the Outline Construction Environmental Management Plan (**Technical Appendix 2.1: Outline Construction Environmental Management Plan (EIAR Volume 4)**).

8.3.8 The scope of the assessment has been informed by consultation responses detailed in **Technical Appendix 1.1: Consultation Register (EIAR Volume 4)** and the legislation, guidance and policies listed **Technical Appendix 8.1 Assessment Methodology (EIAR Volume 4)**.

8.3.9 The scope of this chapter is set out in **Table 8.1**.

Table 8.1: Effects Considered within the Assessment

Impact	Phase*	
	C	O
Alteration to Surface Water Flows and Runoff	X	X
Sedimentation and Increased Erosion Rates	X	X
Chemical Pollution	X	X
Potential for loss/disturbance to peat and carbon rich soils	X	
Potential for peat landslide effects	X	

*C=construction, O=operation and maintenance, X=denotes potential impact considered in assessment.

Potential Impacts Scoped Out

8.3.10 The assessment focusses on likely significant effects and as such impacts that are not likely to result in significant effects have been scoped out of the assessment. A summary of the impacts scoped out, together with reasoning for scoping them out is presented in **Table 8.2**.

Table 8.2: Impacts Scoped Out of the Assessment

Impact	Reasoning
Flood Risk Assessment	The majority of the Site is located within an area assessed by SEPA to be at a Very Low likelihood of fluvial or surface water flooding and development has been directed to areas at a lower likelihood of flooding. Consultation with SEPA and their scoping response confirmed that, at that stage, SEPA would not require detailed flood risk assessment should the Proposed Development not

Table 8.2: Impacts Scoped Out of the Assessment	
Impact	**Reasoning**
	increase flood risk to receptors. The Proposed Development is outside of areas assessed to be at potential risk from fluvial flooding. Areas at an increased likelihood of surface water flooding (according to SEPA's flood maps) are closely associated with small watercourses and vegetated ephemeral surface water flow paths, and measures for the design of watercourses to accommodate suitable flood flows are set out below. Potential impacts of surface water flooding would be mitigated through a comprehensive SuDS strategy for the Proposed Development, which would be developed during the detailed design stage with due consideration of climate change. Therefore, further detailed assessment of flood risk has been scoped out.
Water Abstraction Risk Assessment	Scottish Water (SW) mapping identifies that there are no SW drinking water catchments which are designated as Drinking Water Protected Areas (DWPAs) in the area that are in likely hydrological connection to the Site. Therefore, potential impacts on public drinking water supplies are scoped out of further assessment.
GWDTE	An assessment of the status of habitats identified as potentially groundwater dependent is provided in **Technical Appendix 8.2: Groundwater Dependant Terrestrial Ecosystems (GWDTE) Assessment (EIAR Volume 4)** which shows that vegetation communities within the Site are primarily dependent on rainwater, surface water runoff or shallow soil water. It has been confirmed through a site walkover and hydrological analysis, that potential GWDTE habitats on the Site are in fact rain-fed habitats or in direct connection to surface water supplies and are not supported by groundwater. Therefore, potential impacts on groundwater supplies to habitats (GWDTE) are scoped out of further assessment.
Potential effects on geological designations and geological assets	The Proposed Development is not likely to result in likely significant impacts on designated geological resource given the distance to the nearest receptor (greater than 1 km), therefore this has been scoped out of the assessment.
Potential effects from contaminated land/soils	The potential impacts associated with historical contamination have been scoped out as no likely significant contaminative land uses were identified.
Private Water Supplies	No record of water abstractions or Private Water Supply (PWS) within the surrounding area have been identified through consultation with SEPA and Shetland Islands Council (SIC). Therefore, there is no requirement for a separate detailed risk assessment for PWS abstractions (in line with SEPA Land Use Planning System (LUPS) SEPA Guidance Note 3113[1]).
Cumulative effects	Potential cumulative construction and operational effects with regard to geology and soils have been scoped out of assessment on the basis that no potential for significant cumulative effects have been identified, and considered that the Site is not hydrologically connected or influenced by the cumulative projects within the Study Area.

[1] SEPA LUPS 31 (2014). Available at: https://www.sepa.org.uk/media/143868/lupsgu31_planning_guidance_on_groundwater_abstractions.pdf [Accessed 14/04/2026]

Method of Baseline Characterisation

Extent of the Study Area

8.3.11 The Study Area has been defined based on professional judgment to a distance of 2 km, beyond which distance it is considered unlikely that hydrological and hydrogeological effects would extend. However, surface water and groundwater quality is often assessed at a river catchment level. Therefore, the potential for impacts on downstream water quality has been considered at a river catchment level.

8.3.12 The Study Area, in respect of potential impacts on geology, peat and carbon rich soils, considers land within the Site Boundary.

Desk Study

8.3.13 The desk study was carried out to:

- identify and establish the sensitivity of water resource receptors on the basis of their use, proximity to the Site, existing quality or resource value and consideration of potential source-pathway-receptor linkages;
- confirm the catchments and sub-catchments present across the Site and their connection to watercourses; and
- review desktop soil, geological and peatland information using sources including, but not limited to the National Soils Map of Scotland[2], British Geological Survey (BGS) information[3], SNH Carbon and Peatland Map[4], and online aerial, Ordnance Survey and historical mapping.

8.3.14 The following information sources have been used in the desktop assessment to characterise existing and/or future baseline conditions:

- Ordnance Survey 1:25,000 and 1:50,000 mapping;
- 5m Digital Terrain Model (DTM) data and site-specific topographic surveying;
- Aerial and LiDAR imagery (ESRI world imagery)5;
- BGS Hydrogeological and Groundwater Vulnerability Maps of Scotland (1:625,000)6;
- SEPA Flood Maps7;
- SEPA Water Classification Hub8;
- SIC Private Water Supply Register (2026)9; and
- Drinking Water Protected Areas – Surface, Scottish Government10.

[2] National Soils Map of Scotland. Available at: https://soils.environment.gov.scot/maps/soil-maps/national-soil-map-of-scotland/ [Accessed 06/04/2026]

[3] British Geological Survey (2023). *BGS Geology Viewer.* [online] British Geological Survey. Available online: https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer/ [Accessed 06/04/2026]

[4] Scottish Natural Heritage. (2016). Carbon and Peatland 2016 Map. Available online: http://map.environment.gov.scot/soil_maps/ [Accessed 04/06/2026]

[5] Scottish Government (n.d.) Scottish Remote Sensing Portal. Available online: https://remotesensingdata.gov.scot/data#/list

[6] BGS Hydrogeological and Groundwater Vulnerability Maps of Scotland (1:625,000) (n.d.). Available online: https://www.bgs.ac.uk/information-hub

[7] SEPA Flood Maps (2026) – Available online: https://beta.sepa.scot/flooding/flood-maps/

[8] SEPA Water Classification Hub (n.d.). Available online: https://informatics.sepa.org.uk/WaterClassificationHub/

[9] SIC PWS Register (2026). Information available online: https://www.shetland.gov.uk/environmental-health/public-health/2

[10] Scottish Government (2025). Available online: https://www.gov.scot/publications/drinking-water-protected-areas-scotland-river-basin-district-maps/

Hydrology Field Survey

8.3.15 Hydrological surveying was originally conducted by Ramboll in May 2025. The purpose of the Site walkover was to:

- assess the general hydrological condition of the Site;
- characterise watercourses within the Study Area such that proposed watercourse crossing points could be assessed; and
- assess hydrological conditions at potential GWDTE locations.

8.3.16 The survey consisted of visual inspection and surveying of watercourses across the Site. Where potential GWDTE were identified by National Vegetation Classification (NVC) ecological surveying carried out in July 2022 by Alba Ecology Ltd, site specific review was conducted to identify visual evidence of groundwater emergence, association of habitats to surface water features, evidence of connection to upslope surface water runoff and the presence of deep peat in association with habitats.

8.3.17 Further details of the methodology for NVC surveying of habitats are provided in **Technical Appendix 6.2: Habitat Survey Report (EIAR Volume 4)**.

Peat Survey

8.3.18 Peat surveys were undertaken at the Site to understand the baseline peat conditions and potential constraints, and to inform the design of the Proposed Development to minimise, as far as practicable, the potential direct and indirect effects on peat and carbon rich soils.

8.3.19 The surveys were undertaken on the following dates:

- Stage 1 peat probing was completed by Ramboll in April 2025; and
- Stage 2 peat probing and coring was completed by Fluid Environmental Consultants in July 2025 with an additional Stage 2 survey undertaken by CKOS Solutions Limited in February 2026 following design refinement.

8.3.20 Surveys followed relevant good practice guidance published at the time of the surveys with regard to surveying for developments on peatland[11,12].

8.3.21 The Stage 1 survey is a preliminary, low-density survey and was carried out on a 100 m grid across the developable area of the Site and within areas of likely peatland. Areas outwith the developable part of the Site were probed at a 200 m to inform the biodiversity enhancement and habitat management proposals (further described in **Chapter 6, EIAR Volume 2**). The probing was carried out using collapsible avalanche probes, allowing for probing in excess of 6 m (although such depths were not reached). This peat depth data, along with other environmental and engineering constraints, were used to inform the early layout of the Proposed Development.

[11] Scottish Government, Scottish Natural Heritage, SEPA. (2017). Peatland Survey. Guidance on Developments on Peatland, online version only. Available at: https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2018/12/peatland-survey-guidance/documents/peatland-survey-guidance-2017/peatland-survey-guidance-2017/govscot:document/Guidance+on+developments+on+peatland+-+peatland+survey+-+2017.pdf [Accessed 06/04/2026]

[12] The Scottish Government (2017), Peat Landslide Hazard and Risk Assessments - Best Practice Guide for Proposed Electricity Generation Developments Available at: https://www.gov.scot/publications/peat-landslide-hazard-risk-assessments-best-practice-guide-proposed-electricity/ [Accessed 06/04/2026]

8.3.22 The survey points and field data were collected using a handheld Trimble GPS unit. Peat depth data was modelled using Inversive Distance Weighted (IDW) interpolation in GIS software, and a depth model generated using incremented peat depth categories.

8.3.23 The high-density probing during the Stage 2 survey was carried out along the access tracks, and at the planned turbine, crane pad, and other infrastructure locations, known at the time of the survey. The sampling pattern comprised:

- Proposed turbine locations and hardstandings: peat probing was undertaken at between 10 m and 25 m grids/intervals across the turbine/hardstanding footprint with an easement included for potential earthworks and micrositing;
- Proposed new tracks: the alignment was probed at 50 m intervals along the track and at points every 10 m perpendicular to the centreline on either side of the proposed track; and
- Borrow pit search areas were probed at between 10 m and 20 m intervals dependant on peat depth encountered.

8.3.24 Again, this was carried out using collapsible avalanche probes, and data collected using a handheld Trimble GPS unit.

8.3.25 As part of the Stage 2 surveys, peat cores were taken using a Russian auger, with a sample volume of 0.5 litres (l), and a number of field tests and observations were undertaken. The records taken include:

- depth of acrotelm;
- degree of humification[13] to establish amorphous, intermediate, fibrous and content;
- degree of humification using the Von Post classification[14], based on scale of H1 (completely undecomposed) to H10 (fully amorphous peat);
- fine fibre content, based on scale of F0 (none) to F3 (very high);
- coarse fibre content, based on scale of R0 (none) to R3 (very high);
- water content, based on scale of B1 (dry) to B5 (very wet); and
- substrate underlying the peat where this was possible.

8.3.26 A peat depth probe was taken adjacent to the core location, and cores were photographed.

8.3.27 Further information on the survey methodology is included in **Technical Appendix 8.4: Peat Depth Report (EIAR Volume 4)**.

Peat Landslide Hazard Risk Assessment

8.3.28 A Peat Landslide Hazard Risk Assessment (PLHRA) was undertaken by Ramboll in 2026 in accordance with the methodologies set out within Scottish Government guidance[12]. The results are included in **Technical Appendix 8.6: Peat Landslide and Hazard Risk Assessment (EIAR Volume 4)**.

Borrow Pit Assessment

8.3.29 A borrow pit assessment was undertaken by Ramboll to provide an estimate of the suitability of the rock available for use as part of the Proposed Development, areas and volumes, and

[13] Hodgson, J.M. (ed.) (1974) Soil Survey Field Handbook: Describing and Sampling Soil Profiles. Technical Monograph No. 5, Soil Survey of England and Wales, Harpenden.
[14] von Post, L. (1922) Das genetische System der organogenen Bildungen Schwedens. Sveriges Geologiska Undersökning, C(282).

restoration requirements. It should be noted that the assessment was undertaken using desk top information supplemented by incidental information gathered in the field during the peat depth surveys. No ground investigation was undertaken to inform the assessment. Further information on the methodology and the results are included in the **Technical Appendix 2.2: Borrow Pit Assessment (EIAR Volume 4)**.

Peatland Condition Assessment

8.3.30 A Peatland Condition Assessment (PCA) was undertaken by Alba Ecology Limited in July 2022. This covered the Proposed Development and was undertaken in accordance with the survey methodology[15]. This characterised the peatland condition between 'near natural', 'modified', 'drained', and 'actively eroding'. Further information is included in **Chapter 6: Ecology (EIAR Volume 2)**.

Method of Assessment

Overview

8.3.31 Detailed information on the assessment methodology, including criteria for assessing sensitivity of receptors, magnitude of change and cumulative effects, as well as overall significance criteria, is provided in **Technical Appendix 8.1: Assessment Methodology (EIAR Volume 4)**.

8.3.32 Effects considered to be significant for the purposes of the EIA Regulations are those classified as being **'Major'** or '**Moderate**'.

Limitations and Assumptions

8.3.33 This assessment refers to, and uses, publicly available data sources and relies upon the accuracy of this data.

8.3.34 While there are some limitations in the available baseline data, these do not materially constrain the assessment of potential effects. In particular, the limitations identified below do not undermine the robustness of the conclusions presented, as the assessment is based on conservative assumptions, multiple lines of evidence and well tested mitigation which is known to work. As such, the assessment is sufficient to determine the likely significance of effects. The key data limitations are as follows:

- Surface Water: Flow monitoring and water quality sampling have not been undertaken for the Site. Nevertheless, the surface water environment has been characterised to a sufficient degree using available desk-based information and professional judgement to inform this assessment.
- Groundwater: Site-specific groundwater level monitoring data is not available. However, regional hydrogeological information and contextual data are sufficient to provide an appropriate understanding of the groundwater environment for the purposes of the hydrology assessment.

8.3.35 At this stage, the final quantities of materials required to construct the Proposed Development are estimates, and the final extent and estimate of material to be won and reused, such as peat and soils at the borrow pit area would be confirmed following completion of an intrusive

[15] NatureScot (n.d.). Peatland Condition Assessment Key Points. [online] Available at: https://www.nature.scot/sites/default/files/2023-02/Guidance-Peatland-Action-Peatland-Condition-Assessment-Guide-A1916874.pdf[Accessed 06/04/2026]

ground investigation exercise which would be undertaken when the Proposed Development is consented.

8.3.36 The assessment also relies on an assumption that the schedule of good practice measures set out in this chapter is implemented through the CEMP (outline CEMP provided in **Technical Appendix 2.1: Outline Construction Environmental Management Plan (EIAR Volume 4)** and outline Peat Management Plan (OPMP) (refer to **Technical Appendix 8.5: Outline Peat Management Plan (EIAR Volume 4)**. These documents would be continually reviewed and updated as required to incorporate further mitigation if required, following the implementation of these good practice measures.

8.4 Baseline Conditions

Current Baseline

Hydrology

8.4.1 The Proposed Development is located within an area characterised by a dense network of small, minor watercourses within an extensive peatland landscape. These include both naturally occurring channels and modified drainage ditches established for historical land management (**Figure 8.1: Surface Water Features and Figure 8.2: Water Resources (EIAR Volume 3a)**).

8.4.2 Two larger watercourses are located within the Site, the Aywick Burn and the Burn of Toft. The Aywick Burn flows through the central, northern area of the Site and a larger tributary of the watercourse flows across the north-western extent of the Site in a northerly direction. The north-western tributary forms a confluence with the Aywick burn and discharges to the Yell Sound coastal waterbody (ID: 200503) at the northern site boundary, which has been classified by SEPA as having a 'Good' overall status in 2023 under the Water Framework Directive (WFD) as per the SEPA Water Classification Hub[8]. The Burn of Toft is located within the central, eastern area of the Site with a number of associated small tributary streams. Two field drains are located within the south-western Site boundary which drain to a larger drainage watercourse adjacent to the western Site boundary associated with the public highway

8.4.3 The Burn of Toft watercourse flows in an easterly direction before discharging into the Yell Sound approximately 3 km east of the Site. Observations taken during the Ramboll May 2025 hydrology walkover survey indicate that the geomorphological development of both larger, ordinary watercourses has been driven by the erosion of underlying peat and flows are strongly influenced by the peat's saturation and microtopography. The low permeability and high storage capacity of the peat supports widespread surface saturation and the presence of numerous bog pools, which act as water storage features and regulate downstream flows.

8.4.4 A number of the modified small watercourses across the Site are partially infilled or overgrown with sphagnum moss and other bog vegetation (**Figure 6.3: Phase 1 Habitats and NVC (EIAR Volume 3a**), which contributes to reduced flow velocities and enhanced water retention.

Flood Risk

8.4.5 SEPA Flood Risk maps (**Figure 8.3: SEPA River Flood Risk Mapping** and **Figure 8.4: SEPA Surface Water and Small Watercourse Flood Risk Mapping (EIAR Volume 3a)**) show

that entirety of the Site is assessed to be at a very low likelihood of fluvial flooding (<1 in 1,000 (0.1 %) annual probability).

8.4.6 Generally, the Site is at a very low risk of surface water flooding (less than a 1 in 1,000 (0.1 %) annual probability) with areas of elevated likelihood of surface water and small watercourse flooding associated closely with the channels of ordinary watercourses small streams, and bog pools.

8.4.7 The access track entrance for the Site within the south-western boundary intersects areas up to a High Risk (10 % annual probability) of flooding from a surface water flow pathway that bisects the southern extent of the Site and flows in a westerly direction.

Geological Baseline

8.4.8 According to the BGS 'Geology Viewer' website[3], the Site is predominantly underlain by superficial deposits of peat. Isolated areas of Glacial deposits - Diamicton are shown to be present across the Site. The superficial geology is illustrated on **Figure 8.5: Superficial Geology (EIAR Volume 3a)**.

8.4.9 The underlying bedrock located in the north-western part of the Site comprises metamorphic psammite and pelite belonging to the Yell Sound Psammite Formation. The formation comprises psammite, variably gneissose; with subsidiary layers or lenses of amphibolite, pelite, quartzite and gneissose semi-pelite. The eastern, central and southern regions of the Site are underlain by early Devonian-aged Graven Complex Formation rock (Granodiorite). Granodiorite is a coarse-grained (phaneritic) intrusive igneous rock. This is shown on **Figure 8.6: Bedrock Geology (EIAR Volume 3a)**.

8.4.10 According to the Scottish Government's Carbon and Peatland Map (2016)[4] the majority of the Site is overlain by Class 1 soils, which are defined as '*nationally important carbon rich soils, deep peat and priority peatland habitat*', and '*likely to be of high conservation value*'.

8.4.11 There are small areas in the south of the Site that are classified as Class 4 and Class 5 soils. These areas are described as areas unlikely to be associated with peatland habitats or wet and acidic type (Class 4) or peat soil with no peatland vegetation (Class 5) or where no peat soils are recorded. An extract of the Carbon and Peatland Map in relation to the Site is shown on **Figure 8.7: SNH Carbon and Peatland Map 2016 Extract (EIAR Volume 3a)**.

8.4.12 BGS Mapping[3] shows two major fault lines, approximately 4.6 km to the east (Nesting Fault) and 5 km west (Walls Boundary Fault) of the Site. Both faults are running approximately in a north to south direction.

8.4.13 No nationally important environmental designations specifically for peat or geological conservation are located at the Site. There are no Local Geodiversity Sites within the Site.

8.4.14 A review of aerial imagery and OS mapping indicates that drainage and erosion features are present within the Site, including historical peat cuttings. This was confirmed during the Site surveys. No mining features or historic contaminative land uses were identified within the Site based on BGS and Coal Authority information[16].

[16] Mining Remediation Authority (2021) Mining Remediation Authority Map Viewer. Available at: https://datamine-cauk.hub.arcgis.com/ [Accessed 06/04/2026]

Groundwater Dependant Terrestrial Ecosystems

8.4.15 Ecological surveying carried in 2025 for the Proposed Development (**Technical Appendix 6.2: Habitat Survey Report (EIAR Volume 4)**) has confirmed the presence of areas classified as potentially supporting GWDTEs, based on NVC habitat surveying (**Figure 8.8: Habitats with the Potential to be Groundwater Dependent Terrestrial Ecosystems - National Vegetation Classification (EIAR Volume 3a))**. Therefore, further hydrological assessment has been carried out by Ramboll to determine the actual likelihood of groundwater dependency and the sensitivity of such habitats. Hydrological assessment of potential impacts of the Proposed Development on GWDTE is provided in **Technical Appendix 8.2: GWDTE Assessment (EIAR Volume 4)**.

8.4.16 As per **Technical Appendix 8.2: GWDTE Assessment (EIAR Volume 4)**, areas identified within the NVC survey as potential GWDTEs are considered to have a low potential for GWDTE and are likely ombrogenous.

Peat Depth and Characteristics

8.4.17 Findings of the peat depth surveys are presented in **Technical Appendix 8.4: Peat Depth Survey Results (EIAR Volume 4)**. In summary a combined total of 3,242 peat depth probes were taken during the peat surveys, as shown in **Figure 8.9: Peat Depth Contour Plan (EIAR Volume 3a)**. This included 260 peat depth probes during the Stage 1 survey and 2,982 peat depth probes across the two Stage 2 surveys.

8.4.18 The findings of the Stage 1 site-wide low-density peat probing, along with Stage 2 targeted high-density probing and coring surveys found that the majority of the Site to be underlain by areas of deep peat (74 % of peat depth probes recorded peat depths greater than 1 m).

8.4.19 In accordance with the Peatland Survey Guidance[11], peat soil is defined as organic soil exceeding 0.5 m in thickness and containing greater than 60 % organic matter; organic layers of less than or equal to 0.5 m are therefore classified as organo-mineral soils rather than peat.

8.4.20 The definition for deep peat used in this chapter comprises areas of soil with a peat layer more than 1 m deep in line with the Joint Nature Conservation Committee (JNCC) report '*Towards an assessment of the state of UK Peatlands*'[17] .

8.4.21 The peat depth survey results for the Site are summarised as follows:

- 8 no. samples (0.2 %) located on land with no peat present/absent (≤ 0.05 m depth of peat);
- 216 no. samples (6.7 %) located on land with less than or equal to 0.5 m (> 0.05 m and ≤ 0.5 m) depth of peat (or organo-mineral soil);
- 612 no. samples (18.9 %) located on land with between 0.51 m and 1.0 m (> 0.5 m and ≤ 1.0 m) depth of peat;
- 1043 no. samples (32.2 %) located on land with between 1.1 m and 1.5 m (> 1.0 m and ≤ 1.5 m) depth of peat;
- 757 no. samples (23.3 %) located on land with between 1.6 m and 2.0 m (> 1.5 m and ≤ 2.0 m) depth of peat;

[17] Joint Nature Conservation Committee, 2011. Towards an assessment of the state of UK Peatlands, JNCC report No. 445 187_jncc445.pdf

- 473 no. samples (14.6 %) located on land with between 2.1 m and 3.0 m (> 2.0 m and ≤ 3.0 m) depth of peat;
- 103 no. samples (3.2 %) located on land with between 3.1 m and 4.0 m (> 3.0 m and ≤ 4.0 m) depth of peat;
- 26 no. samples (0.8 %) located on land with between 4.1 m and 5.0 m (> 4.0 m and ≤ 5.0 m) depth of peat; and
- 4 no. samples (0.1 %) located on land with greater than 5.0 m (>5.0 m) depth of peat.

8.4.22 The mean peat depths recorded within the developable area of the Site was noted to be between 0.63 m and 2.69 m. The deepest areas of peat were recorded up to 6.0 m in the central part of the Site.

8.4.23 The peat depth interpolated contours are shown on **Figure 8.9: Peat Depth Contour Plan (EIAR Volume 3a)**.

8.4.24 Whilst some of the areas of deepest peat in the centre of the Site have been avoided in the siting of the Proposed Development, it has not been possible to avoid areas of deep peat within the Site owing to the prevalence of areas of deep peat across the Site. **Table 8.4.1** in **Technical Appendix 8.4: Peat Depth Survey Results (EIAR Volume 4)** indicates the mean peat depth to be greater than 1 m but less than 2 m at the proposed locations for the permanent hardstandings associated with Turbines 2, 3, 4, 5 and 6, including the access track and construction compound locations.

8.4.25 The proposed location of the hardstanding for Turbine 8 and associated access track have mean peat depths greater than 2 m (mean peat depth of 2.7 m and maximum peat depth of 5.3 m, and mean peat depth of 2.2 m and maximum peat depth of 4.2 m respectively).

8.4.26 Floating track has been considered as part of the design process to minimise disturbance and excavation of peat in these sections but has not been possible due to the undulating topography of the Site. However, these would be considered further at detailed design stage post-consent, once detailed ground investigation has been undertaken and the design further refined.

8.4.27 The peat across the Site is generally intermediate, with the majority of the samples assessed as having low fine fibre content (F1) and low coarse fibre content (R1).

8.4.28 The results of the Von Post classification indicate that the majority of the samples tested scored between H4 and H8, indicating slight to strong rates of decomposition.

8.4.29 The mean water content of the peat at all sample locations was between wet and moderately wet (B3 to B4). This is consistent with the potential high degree of modification to the peatland through artificial drainage, cuttings, and grazing which has caused drying, oxidation, and erosion of peat and carbon-rich soils, which has likely increased carbon release.

Peat Geomorphology

8.4.30 Digital and aerial photography and DTM Lidar data was used to interpret and map geomorphological features within the Site. This interpretation and the resulting geomorphological map was used to inform **Technical Appendix 8.6: Peat Landslide Hazard Risk Assessment (EIAR Volume 4**.

8.4.31 The Site comprises an undulating plateau that ranges in elevation from mean high-water level at its northernmost extent by Ay Wick, to approximately 110 m Above Ordinance Datum (AOD) at the Hill of Crooksetter located east of the centre of the Site. Towards the southern

end of the Site the topography gently undulates between 40 m AOD and 90 m AOD. The Site is drained by a number of natural burns such as the Aywick Burn, along with artificial drainage ditches installed historically in an attempt to lower the water table and improve grazing conditions.

8.4.32 The desk study review found there were no published articles, evidence from historical mapping or landowner accounts of land slips within the Site. Some evidence of peat instability was identified during the surveys, with features including hags, groughs, and other areas of peat erosion noted. Several localised areas of natural or diffuse drainage were recorded across the Site which displayed near basal erosion of peat due to surface water run-off. However, the predominant features noted were sphagnum pools indicating a lack of drainage within the peatland. No major instability features, evidence of incipient instability or past landslides were noted. Some areas of historical peat cutting were noted to be present.

8.4.33 The Site is considered to be predominantly Low risk with regards to peat slide risk. The exceptions to this are the areas adjacent to Turbine 4 and Turbine 8, as well as six areas of access track locations which are considered to be Moderate risk. These are described in detail in **Technical Appendix 8.6: Peat Landslide Hazard Risk Assessment (EIAR Volume 4)**.

8.4.34 It is estimated that the borrow pit would generate approximately 24,000 m^3 of stone for use in the construction (e.g. access tracks/hardstandings) of the Proposed Development (refer to **Technical Appendix 2.2: Borrow Pit Assessment (EIAR Volume 4)**). It is estimated that approximately 1,546 m^3 of peat and peaty soils would be excavated from the borrow pit, dependent on the findings of ground investigation (based on the average peat depth at that location). Peat excavation is also required for other elements of the Proposed Development, including turbine foundations, crane hardstandings, access tracks, the substation, BESS and construction compounds, with the total estimated peat excavation volumes reported within the outline Peat Management Plan (OPMP) **(Technical Appendix 8.5: Outline Peat Management Plan (EIAR Volume 4)**).

Future Baseline

8.4.35 There is the potential for climate change to impact on future baseline conditions. Climate change studies predict a decrease in summer precipitation and an increase in winter precipitation alongside slightly higher average temperatures. This suggests that there may be greater pressures on water resources and rain-fed habitats in summer months in the future. However, summer storms are predicted to be of greater intensity. Therefore, peak fluvial flows associated with extreme storm events may also increase in volume and velocity, with the potential to accelerate and exacerbate erosion of peat and other soils. These climate change factors have been taken into account when considering the potential for significant effects.

8.4.36 In the absence of the Proposed Development, it is assumed that the existing peat and carbon rich soils present would be subject to existing land use factors, such as drainage, which has the potential to result in modification to peat. The Study Area is noted to have been modified by these existing factors. However, it is also assumed that in the absence of the Proposed Development there would be no requirement to excavate peat and carbon rich soils.

Summary of Sensitive Receptors

8.4.37 A summary of the receptors considered likely to be affected by the Proposed Development, and therefore scoped into the EIAR are set out below in **Table 8.3**, together with their associated sensitivity.

Table 8.3: Summary of Sensitive Receptors		
Receptor	**Sensitivity**	**Justification**
Watercourses and surface water features	High	Watercourses crossing the Site and adjacent to the Site boundary are considered to be of high sensitivity based on the SEPA WFD water quality designations and hydrological characteristics.
Soils and Peat	Low (locally Medium and High)	Peatland and carbon rich soils are sensitive receptors. These habitat types are included in Annex 1 of the EC Habitats Directive[18], are sensitive to environmental change, and are of regional importance. Peatlands which are classified as Class 1 on the NatureScot Carbon and Peatland Map[4] are considered to be of national importance. Across the Site, ground conditions comprise a mosaic of mineral soils, organo-mineral soils with shallow organic layers (less than 0.5 m depth), areas of shallow peat (greater than and equal to 0.5 m and less than 1 m) and areas of deep peat (greater than or equal to 1 m), as shown in the peat depth survey results presented in **Technical Appendix 8.4: Peat Depth Survey Results (EIAR Volume 4)**. The definitions of shallow and deep peat used for this assessment align with those used by the Soil Survey of Scotland[19]. Where carbon rich soil and deep peat with high conservation value are present (i.e. near natural condition and greater than 1.0 m in depth), these areas are considered to be **High** sensitivity. Areas of peat with average depths between 0.5 m and 1.0 m in mostly near natural condition, or peat between 1.0 m and 2.0 m in depth that is drained, eroded or otherwise modified, are considered to be **Medium** sensitivity. The majority of the Site has peat present but is modified or is degraded by drainage, erosion or other forms of modification and is therefore considered to be of **Low** sensitivity. Overall, on balance, the Site is considered to be of **Low** sensitivity, with areas of **Medium** and **High** sensitivity peat.

8.5 Mitigation

8.5.1 Embedded (primary) and standard (tertiary) mitigation are inherent within the project design and comprise measures that have influenced the location and design of the Proposed Development. Embedded mitigation would be secured through the description of the Proposed Development as part of planning consent and is described in the design evolution narrative (refer to **Chapter 3: Design Evolution (EIAR Volume 2)**). Standard (tertiary) mitigation

[18] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive)

[19] Lilly, A. (2023). Origins of the Soil Survey of Scotland 50 cm threshold to define a Peat soil. The James Hutton Institute. Available at: https://sefari.scot/sites/default/files/documents/Origin%20of%2050%20cm%20Threshold%20for%20Defining%20Peat%20on%20Soil%20Maps%20of%20Scotland.pdf [Accessed 06/04/2026]

comprises measures that are mandated by legislative requirements or standard best practices and would be required regardless of the outcomes of any EIA.

8.5.2 As the embedded and standard mitigation would form part of the Proposed Development, there would be no consented scenario where the mitigation measures would not be implemented. As such, the assessment of likely significant effects assumes that these mitigation measures are implemented.

8.5.3 The following design principles (i.e. embedded mitigation measures) were incorporated into the Proposed Development layout:

- In line with SEPA standing advice and scoping opinion a 50 m buffer has been applied around watercourses within which the placement of infrastructure (with the exception of watercourse crossings), has been avoided.
- The design process aimed, as far as practicable, to avoid watercourses, areas of deeper peatland, blanket bog and wet modified bog, and potential high GWDTEs for the location of turbines and other infrastructure.

8.5.4 Standard mitigation measures of relevance to hydrology, hydrogeology, geology and soils include:

- Details of construction phase Sustainable Drainage Systems (SuDS) would be included in the CEMP and a Pollution Prevention Plan (PPP) would be prepared, to provide a suitable surface water management and a sequential treatment approach. These measures would mitigate potential adverse impacts on the hydrology of the Site and surrounding areas during the construction phase of the Proposed Development. Measures would ensure that pre-development runoff rates are maintained and that rates of runoff to watercourses are not increased. Surface water runoff would be managed using SuDS designed to prevent the release of sediment and pollutants to controlled waters by incorporating features such as settlement ponds, sediment traps and filtration measures where needed and to be specified within the CEMP.
- Specifications for SuDS would be developed at the detailed design stage following completion of micrositing and finalisation of the track alignments. Drainage design would be subject to approval by the Lead Local Flood Authority (LLFA) and would be prepared in accordance with SEPA guidance and the most recent edition of the SuDS Manual.
- A Site maintenance programme would be developed for all SuDS and drainage assets to be installed at construction stage to ensure that the function and benefit provided by the asset remains for the lifetime of the Proposed Development.
- Construction and operational works with regard to the Battery Energy Storage System (BESS) would be carried out under supervision of the Environmental Clerk of Works (EnvCoW). Details regarding mitigation for containment of potential contaminants would be included within the PPP and would include self-contained treatment features to be included within a SuDS strategy at the detailed design stage of the Proposed Development.
- At the nine proposed new watercourse crossings, detailed assessment of potential flow rates would be carried out by the appointed contractor at detailed design stage. The design of watercourse crossings would take account of the future 'with climate change' baseline and (to avoid altering the flow regime) would be sized for a 1:200 year plus climate change flood event (+40 % for the Orkney and Shetland River Basin Region). Crossings would also be designed to ensure the continued passage of fish and mammals along

watercourses and their banks. It is anticipated detailed assessment of flow rates would be carried out by an appointed contractor at detailed design stage.

8.5.5 Best practice measures for the management of construction activities are set out in the Outline CEMP (**Technical Appendix 2.1: Outline Construction Environmental Management Plan (EIAR Volume 4)**), OPMP (**Technical Appendix 8.5: Outline Peat Management Plan (EIAR Volume 4)**) and PLHRA (**Technical Appendix 8.6: Peat Landslide Hazard Risk Assessment (EIAR Volume 4)**). A detailed CEMP and PMP would be prepared by the appointed Principal Contractor prior to the commencement of construction.

8.5.6 A summary of the standard mitigation considered for the assessment is set out in **Table 8.4** below.

Table 8.4: Summary of Standard Mitigation

Reference	Phase*	Description	Purpose of Mitigation
HH01 GS01	C	Preparation of a CEMP to include best working practice to be employed at the Site, particularly with respect to works on or near watercourses and measures for the control of pollution (including sediment laden water) at the Site. The CEMP would include construction methods and environmental protection measures applying best practice guidance as set out in applicable SEPA Guidance for Pollution Prevention (GPPs). Implementation of these measures during all aspects of the construction phase would ensure construction activity would not cause adverse effects to sensitive receptors. The detailed CEMP would be prepared by the Principal Contractor prior to the commencement of construction, and submitted to SIC for approval, in consultation with SEPA.	Mechanism for implementation of best working practice in relation to the water environment and management of peat/carbon rich soils.
HH02	C, O	The appointed Contractor would compile a Pollution Prevention Plan (PPP) which would include details of proposals for the storage and handling of potentially contaminative materials, construction phase Sustainable Drainage Systems (SuDS), construction site plans and proposed drainage management measures. The PPP would form part of the CEMP and be submitted to SIC for approval in consultation with SEPA. Storage of potentially contaminative materials at least 50 m from watercourses. Fuels, oils or chemicals stored on-site would be located over an impervious base and in accordance with the EASR. Petrol interceptors and spill kits would be utilised where chemical spillage is a possibility. Measures to form part of the PPP and therefore CEMP to be submitted to SIC for approval in consultation with SEPA. Implementation of construction phase SuDS to provide a surface water management and treatment train. Measures would ensure that pre-development runoff rates are maintained and that rates of runoff to watercourses are not increased. To form part of the CEMP which would be submitted to SIC for approval in consultation with SEPA.	To ensure water quality is maintained, prevent the release of pollutants to the water environment and maintain pre-development run-off rates.

Table 8.4: Summary of Standard Mitigation			
Reference	**Phase***	**Description**	**Purpose of Mitigation**
		Best practice working with concrete and concrete washout management to be included within the PPP.	
HH03	C, O	Sediment capture methods to be implemented at the Site would be detailed in a Drainage Impact Assessment (DIA) which would be prepared by the appointed Contractor. DIA to be submitted to SIC for approval.	Prevention of the release of sediment laden water and ensure long-term function of drainage and treatment features.
HH04	C, O	SuDS maintenance programme/drainage asset maintenance plan to be included within DIA.	Ensure long-term function of drainage and treatment features.
HH05	C, O	EnvCoW supervision for sensitive works (incl. BESS).	Supervision/oversight of mitigation implementation and operatives on sensitive tasks.
HH06	C, O	Any requirement for monitoring water quality within watercourses downstream of the Proposed Development would be approved by SIC in consultation with SEPA and procedures for this would be detailed in the CEMP.	Monitor effectiveness of mitigation with regards to water quality.
HH07	C, O	Detailed proposals for the management of surface water runoff at the Site to be prepared by appointed Contractor and submitted to SIC for approval in consultation with SEPA.	Management of surface water runoff rates and prevention of the release of sediment laden water or pollutants to controlled waters.
HH08	C, O	Drainage design is to be prepared by an appointed Contractor at the detailed design stage to ensure surface water supply is maintained to downslope habitats. Measures would include: ▪ Installation of upslope cut off drains to collect surface water runoff from upslope locations and distribute runoff to downslope areas; ▪ Installation of cross drains below tracks at regular intervals to ensure the distributed conveyance of runoff across linear features (i.e., the collection and downslope release of runoff should not create new preferential surface water flow paths); ▪ Consideration to be given to the installation of granular, permeable sub-base materials on tracks to maintain flows of soil water; and ▪ Installation of SuDS measures to ensure the settlement of sediments, prior to distributed release over downslope vegetated area. Drainage design to be in line with CIRIA (C753) guidance and submitted to SIC for approval in consultation with SEPA.	Distribution of surface water to potentially sensitive habitats.

Table 8.4: Summary of Standard Mitigation			
Reference	**Phase***	**Description**	**Purpose of Mitigation**
HH09	C, O	Watercourse crossings to be designed, in line with SEPA requirements, to accommodate flows of a 1 in 200 (0.5%) annual probability, inclusive of an allowance for climate change. Watercourse crossings designed to minimise disruption to bed and banks and allow the continued passage of aquatic and non-aquatic species. Closed culverts, where employed, would be oversized to allow naturalisation of the culvert bed substrate, ensuring they don't obstruct passage of fish or other fauna. A detailed Watercourse Crossing Plan would be prepared by appointed Contractor and submitted to SIC for approval in consultation with SEPA.	Flood risk management, watercourse protection.
GS02	C, O	An OPMP is provided in (**Technical Appendix 8.5: Outline Peat Management Plan (EIAR Volume 4**)) which includes construction and operational mitigation measures as appropriate, including mitigation measures for managing peat slide risk are detailed in **Technical Appendix 8.6: Peat Landslide Hazard Risk Assessment (EIAR Volume 4)**. The PMP would be submitted to the SIC for approval in consultation with SEPA.	Mechanism for implementation of best working practices in relation to peat and soils.
GS03	C	Micrositing tolerances to be used in the event of encountering unexpected pockets of deep peat. All micrositing to be supervised by an EnvCoW or suitably appropriately experienced engineer.	To reduce as far as practicable the potential for loss/disturbance to peat and carbon rich soils.

*C=construction, O=operation and maintenance.

8.6 Assessment of Likely Effects

Potential Construction Effects

Alteration to Surface Water Flows and Runoff

8.6.1 There is the potential to alter in-channel or overland flow regimes through excavations, disruption to existing natural and ephemeral flow pathways, and alterations to local hydro-morphological characteristics through redirection of small watercourses or insertion watercourse crossings. This could lead to a reduced response time to peak flows following rainfall events through obstruction of overland flows due to the presence of artificial land drainage and could have indirect effects on aquatic ecology, and surface water regime upstream and downstream of Proposed Development.

8.6.2 The sensitivity of watercourses, surface water flow paths, and underlying ombrogenous peatland is assessed to be High, due to reliance of underlying peat habitats on surface water levels to maintain peat saturation and characteristic vegetation, and through limited resilience

to changes in flow regime. Embedded mitigation measures include appropriate detailed drainage design in line with CIRIA (C753) guidance (mitigation reference: HH08), timing of works away from high flow periods, and routine monitoring in line with the CEMP (mitigation reference HH01). The magnitude of impact would be Small and therefore would result in Minor and **Not Significant** effects.

Sedimentation and Increased Erosion Rates

8.6.3 There is the potential to increase erosion and transport of sediment to watercourses as a result of watercourse crossing construction, vegetation and soil stripping, excavations and dewatering activities. Potential effects include indirect impacts on aquatic ecology and fluvial morphology downstream of Proposed Development.

8.6.4 There is the potential to alter surface water flow paths in underlying peat and mobilise suspended sediments or contaminants into watercourses as a result of dewatering activities, excavations and associated construction works. Potential effects may include indirect impacts on ephemeral surface water flow paths, alterations to small-stream morphology, and ground settlement downgradient of dewatering activities. Nine watercourse crossings would be required as a result of the Proposed Development for access tracks. Crossing locations are identified in **Technical Appendix 8.3: Watercourse Crossing Assessment (EIAR Volume 4)**, which also sets out best practice design measures and likely licensing requirement under EASR[20] which would be delivered for each crossing location.

8.6.5 The sensitivity of peatland habitats, small watercourses, and ephemeral surface water flow paths within the Site is assessed to be High due to reliance on consistent surface water flow regimes. Taking into account embedded mitigation and the implementation of best practice construction measures to be detailed in a CEMP (mitigation reference: HH01), the magnitude of impact would be Small and therefore have the potential to result in Minor and **Not Significant effects**.

Chemical Pollution

8.6.6 There is the potential to impact on receiving soils, groundwater and watercourse quality through the release of contaminated water and stored chemicals used on-site during construction works. Potential effects include effects on water quality and indirect effects on aquatic ecology. However, pollution prevention measures would be implemented through embedded and standard mitigation as detailed within the CEMP and the PPP in order to prevent the release of pollutants to the water environment (mitigation reference: HH01 and HH02).

8.6.7 In the unlikely event of an accidental release of potentially contaminative material, clean up procedures set out in the CEMP would be followed and SEPA would be notified of any release of pollutants to controlled waters. The sensitivity of watercourses at the Site is assessed to be High. Taking into account embedded mitigation and the implementation of standard measures for best practice during construction, to be detailed in the CEMP and PPP, the magnitude of impact would be Small and therefore have the potential to result in Minor and **Not Significant** effects.

Potential for loss/disturbance to peat and carbon rich soils

8.6.8 The Proposed Development has the potential to effect peat and carbon rich soils during the construction phase through changes that could occur due to:

[20] Environmental Authorisation (Scotland) Regulations 2018

- Compaction of soils/peat from vehicles and infrastructure.
- Potential for increased erosion of peat soils through disturbance, either through direct disturbance or localised drying caused by infrastructure.
- Potential for peat slide caused by the construction of infrastructure which could affect human and environmental receptors (particularly the areas of the Site that are considered to be of **Moderate** risk, such as adjacent to Turbine 4 and Turbine 8, as well as six areas of access track locations).
- Loss of peatland habitats and carbon rich soils through excavations for infrastructure including turbines, BESS, substation and access tracks, where peat is in >1 m depth.

8.6.9 The results of the peat surveys have informed the design of the Proposed Development. Much of the area where development is proposed is underlain by deep peat, in excess of 1 m in depth. It has not been possible to avoid areas of deep peat completely but infrastructure has sited outwith areas of the deepest peat where practicable.

8.6.10 The peatland condition assessment undertaken found that the majority of the Site was found to be 'modified' as a result of activities such as drainage, grazing or peat cutting. Areas of be 'actively eroding' peatland such as haggs and erosion features were also found to be present. Small areas of 'near natural' peatland were also found.

8.6.11 While consideration has been given in the design process to avoid locating infrastructure of the Proposed Development over areas of deep peat (greater than 1 m) where practicable, it has not been possible to completely avoid impacts. This is as a result of the need to take a holistic view of a wide range of technical and environmental constraints, including technical reasons such as the need to orientate hardstandings and tracks optimally taking account of topography to minimise cut and fill requirements and avoiding features such as watercourses for example, and also the presence of other environmental constraints such as heritage, landscape and ecology/ornithology receptors.

8.6.12 Whilst deep peat is prevalent across the Site, the siting of infrastructure of the Proposed Development has focussed on locating it in areas of 'modified' peat and avoiding those that are 'near natural' or 'actively eroding' to reduce the sensitivity of potential effects.

8.6.13 Where it has not been possible to avoid these impacts, it has been assumed that industry standard construction techniques and methodologies can be used to reduce the disturbance of peat and carbon rich soils (mitigation reference: GS02). These include micrositing within defined tolerances (mitigation reference: GS03).

8.6.14 On this basis, the impact on these areas is considered to be of **Medium** sensitivity and a **Medium** magnitude on the basis that the impact is widespread. In the absence of further specific mitigation the effects are **Significant** (**Moderate adverse**).

Peat Slide Risk

8.6.15 A PHLRA has been undertaken for the Proposed Development (refer to **Technical Appendix 8.6: Peat Landslide Hazard Risk Assessment (EIAR Volume 4)**). This concludes that the Site is considered to be Low risk with regards to peat slide risk with the exception of areas adjacent to Turbine 4 and Turbine 8, as well as six areas of access track locations which are considered to be Moderate risk (described in detail in **Technical Appendix 8.5: Outline Peat Management Plan (EIAR Volume 4)**).

8.6.16 It is considered that the standard best practice mitigation measures included within **Technical Appendix 8.6: Peat Landslide Hazard Risk Assessment (EIAR Volume 4)** would be sufficient to provide mitigation for low risk areas of the Site (mitigation reference: GS02).

8.6.17 In the absence of additional mitigation the risk level of peat land slide would remain as **Moderate adverse (Significant)** for the areas of Moderate risk. Further details on additional mitigation for these areas are detailed in **Section 8.8**.

Potential Operational Effects

Effects on Watercourses and Surface Water Features

8.6.18 There is the potential for hardstanding surfaces and compacted tracks and infrastructure to lead to increased rates of surface runoff, in turn leading to the potential for increased risk of surface erosion and downstream flood risk.

8.6.19 There is the potential that alteration of runoff volumes and rates could alter fluvial morphology during the operational phase or lead to increased erosion rates (increasing sediment loads) if surface water runoff from impermeable areas is not appropriately managed. The potential risk of the release of sediment from the activities relating to the operational phase of the Proposed Development is substantially lower than during construction because of the decreased levels of ground disturbance and the reinstatement of vegetation following the construction phase.

8.6.20 Occasional maintenance and repair of turbines infrastructure would be required during the operational phase, which could involve the operation of plant at the Site. There is the potential for the accidental release of small volumes of fuel from plant or for the accidental release of materials transported onto the Site for maintenance.

8.6.21 The sensitivity of watercourses, ombrogenous peatland habitats and ephemeral surface water flow paths at the Site is assessed to be High. Taking into account embedded mitigation by design, the maintenance of SuDS features in line with a maintenance plan and suitable management of materials handling (mitigation references: HH01 and HH02), the magnitude of impact would be Small and therefore have the potential to result in a Minor and **Not Significant** effect.

Potential for Loss/Disturbance to Peat and Carbon Rich Soils

8.6.22 There are not anticipated to be any impacts on loss/disturbance to peat further to those identified during the construction phase; therefore, no operational effects are predicted.

Peat Slide Risk

8.6.23 There are not anticipated to be any impacts from peat landslide hazard to those identified during the construction phase; therefore, no operational effects are predicted.

Potential Cumulative Construction Effects

8.6.24 Potential cumulative environmental impacts to water resources have been assessed where concurrent proposed wind farm sites or construction activity may be in hydrological connection with the Proposed Development, or water resource receptors.

8.6.25 The following schemes have been taken into account in assessing the potential for cumulative effects as a result of hydrological interaction with the Proposed Development:

- Beaw Field Wind Farm, consented; and
- Energy Isles Wind Farm (formally Yell Wind Farm), consented.

8.6.26 The above developments assessed for potential cumulative effects are not in hydrological connection with the Proposed Development.

8.6.27 Based on the distance from the Proposed Development to the cumulative developments identified above and the limited productivity of the underlying aquifers in the area (Low to Moderate productivity) there is assessed to be a low risk of cumulative hydrogeological effects on the water environment.

8.6.28 All the developments considered above would be subject to the same planning and regulatory requirements as the Proposed Development, with regards to protection of the water environment. At each site this would include management of construction activities under an authorisation by SEPA and the implementation of construction environmental management procedures. There is therefore considered to be a very low likelihood of cumulative impacts during the construction phase of the Proposed Development. The potential magnitude of cumulative impacts during the construction phase would be Small and therefore have the potential to result in a Minor and **Not Significant** effect.

Potential Cumulative Operational Effects

8.6.29 The potential for impacts on the water environment is significantly lower during the operational phase of the Proposed Development and cumulative schemes assessed above. At all cumulative schemes, drainage design for the implementation of SuDS measures would prevent alteration of runoff rates and hydrological conditions in the surrounding area. Additionally, pollution prevention measures would be implemented for the management of any potentially deleterious materials. Therefore, there would be no cumulative impact on the water environment as a result of the potential interaction of the Proposed Development with cumulative schemes.

8.7 Additional (Secondary) Mitigation

8.7.1 Additional (secondary) mitigation comprises site-specific mitigation which has been included to further reduce the magnitude of impact/significance of effect identified through the EIA.

8.7.2 A summary of the additional mitigation is set out in **Table 8.5**.

8.7.3 The PLHRA (**Technical Appendix 8.6: Peat Landslide Hazard Risk Assessment (EIAR Volume 4)**) noted that areas adjacent Turbine 4 and Turbine 8, as well as six sections of track were at Moderate risk of peat landslide. To mitigate this risk additional mitigation is proposed through the PLHRA as follows:

- Micrositing of infrastructure following additional post-consent ground investigation and detailed design; and
- Where micrositing is not practicable then excavation of the peat to remove the potential risk would be required.

8.7.4 In relation to effects on peat and carbon rich soils, in line with the principles of the mitigation hierarchy under NPF4, Soils, Policy 5, further additional mitigation is proposed. This additional mitigation aims to reduce significant effects on peat and carbon rich soils and provide offsetting (reinstatement) of peatland that would be disturbed by the Proposed Development through implementation of a detailed PMP (mitigation reference: GS06) and enhancement of some of the currently degraded peatland habitats present on the Site as set out in the Outline Biodiversity Enhancement and Habitat Management Plan (OBEHMP) (**Technical Appendix**

6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)).

8.7.5 The mitigation approach for the Proposed Development uses a combination of reuse and restoration which has formed the peat management strategy (as described in **Technical Appendix 8.5: Outline Peat Management Plan (EIAR Volume 4)**).

8.7.6 The primary reuse strategy for excavated peat at the Proposed Development is to reinstate temporary construction areas, including the borrow pit, and to restore peat within permanent infrastructure locations (e.g. turbine foundations/hardstand areas), as set out in **Table 8.5.2** of **Technical Appendix 8.5: Outline Peat Management Plan (EIAR Volume 4)**.

8.7.7 It is also noted that excavated peat could be reused for the restoration and enhancement of habitats at the Site as detailed in **Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**, for example the infilling of artificial drainage channels, cuttings and erosion features and gullies. This is described further in **Technical Appendix 8.5: Outline Peat Management Plan (EIAR Volume 4)**.

8.7.8 At this stage it is estimated that the Proposed Development would result in the excavation of approximately 142,044 m^3 of peat including peaty/organo-mineral soils (comprising approximately 51,709 m^3 acrotelmic peat and 90,336 m^3 of catotelmic peat).

Potential reinstatement opportunities for excavated peat, comprising temporary infrastructure reinstatement, and borrow pit restoration are estimated to be 60,429 m^3.

8.7.9 There is potential for large landscape-scale peatland restoration within the Site, specifically blocking of drainage features around areas which are considered to have once had numerous bog pools. Hagg reprofiling/infilling, gully and drainage ditch blocking and peat cutting reprofiling/infilling are also all suitable peatland restoration techniques for use within the Site.

8.7.10 Peatland features, such as erosion features, drainage ditches, 'flushes' and peat cuttings have been mapped in detail (as shown in **Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**). All of these features are proposed for restoration as part of the OBEHMP except where they coincide with the permanent parts of the Proposed Development Footprint.

8.7.11 The proposed peatland restoration includes:

- Sensitive restoration of all of the areas mapped as Actively Eroding within the Site boundary. This would result in the restoration of approximately 84.5 ha of bog habitat.
- Reinstating 8.5 ha of reseeded grassland into blanket bog habitat.
- Restoring approximately 52.0 km of erosion features and gullies within the Site boundary to arrest or limit peat erosion and carbon loss, to encourage vegetation cover of the peatland, return to encourage a natural drainage pattern. This would provide an opportunity for the reuse of 52,000 m3 of excavated peat and mineral soil for restoration, based on a conservative estimate assuming erosion features and gullies averaging 1 m wide and 1 m in depth.
- Blocking approximately 27.7 km of drainage ditches and approximately 40.9 km of historic drains with flush like habitat in the Site boundary to restore the natural drainage pattern of the peatland and encourage revegetation. This would provide an opportunity for the reuse of 68,600 m3 of excavated peat and mineral soil for restoration, based on a conservative estimate assuming drainage features and ditches averaging 1 m wide and 1 m in depth

- Restoring approximately 0.8 km of peat cutting by infilling lost peat, reprofile edge, and by encouraging vegetation cover of the peatland and a return to encourage a natural drainage pattern. This would provide an opportunity for the reuse of 6,000 m3 of excavated peat and mineral soil for restoration, based on a conservative estimate assuming peat cuttings averaging 5 m wide and 1.5 m in depth
- Restoring erosion features, peat cuttings, drainage ditches, and flush like features would rewet an estimated 213.4 ha of habitat around the mapped features within the Site.

8.7.12 On this basis, the habitat restoration measures outlined above would provide approximately 12.4 ha and 126,600 m^3 of specific additional opportunities for reinstatement of excavated peat and mineral soils. There are sufficient opportunities for the reuse of excavated peat and mineral soils from the Proposed Development in reinstatement and habitat restoration proposals.

8.7.13 In addition, the planned restoration work outlined in the OPMP (**Technical Appendix 8.5: Outline Peat Management Plan (EIAR Volume 4**)) and OBEHMP (**Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan EIAR Volume 4**) would include at least 247.9 ha (1:6.4x multiplier of the total predicted loss of blanket bog) 'active' peatland restoration plus the potential for reduced grazing pressure on 505 ha (1:13x multiplier of the total predicted loss of blanket bog) of peatland habitat providing offset/compensation.

8.7.14 If the peatland restoration actions, identified within the OPMP and the OBEHMP, are taken forward, which would only happen if the Proposed Development is consented, then these changes in habitat and hydrology, i.e. impeding the flow of water and wetting up areas of blanket bog, are likely to have a beneficial effect on bog habitat. These actions would:

- Reduce carbon loss;
- Secure the carbon store;
- Wet up vegetation;
- Restore hydrological conductivity;
- Provide ecological enhancement; and
- Potentially create additional areas where carbon is actively being sequestered.

8.7.15 There is also potential to identify and fund suitable offsite peatland restoration and biodiversity enhancement (refer to **Technical Appendix 6.5: OBEHMP (EIAR Volume 4)**).

Table 8.5: Summary of Additional Mitigation					
Reference	**Phase***	**Description of Mitigation**	**Purpose of Mitigation**	**Means of Implementation**	**Consultation or Approval Required**
GS05	Pre-construction	Following additional post-consent ground investigation and detailed design, should areas of Moderate Risk of peat slide remain, then micrositing infrastructure away from these areas is recommended. Where micrositing is not practicable then excavation of the peat to remove the potential risk would be required.	To mitigate the peat slide risk at Turbine 4 and 8 as well as six sections of access track.	Post-consent detailed ground investigation, updated PLHRA and detailed design.	Updated PLHRA based on detailed design submitted to and approved by SIC.
GS06	Construction	The mitigation approach for the Proposed Development uses a combination of reuse and restoration which has formed the peat management strategy (as described in **Technical Appendix 8.5: Outline Peat Management Plan (EIAR Volume 4))**. The appointed Contractor would prepare a detailed PMP prior to the commencement of construction which would be based on further ground investigation. The primary reuse strategy for excavated peat at the Proposed Development is to reinstate temporary construction areas, including the borrow pit, and to restore peat within permanent infrastructure locations (e.g. turbine foundations/hardstand areas), but also use of surplus peat for the restoration and enhancement of habitats at the Site as detailed in **Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**, for example	To mitigate surplus peat generated that cannot be reinstated, and facilitate habitat restoration proposals.	This is to be delivered through the OBEHP, as well as the detailed PMP.	Detailed OBEHP and PMP based on detailed design submitted to and approved by SIC.

Table 8.5: Summary of Additional Mitigation					
Reference	**Phase***	**Description of Mitigation**	**Purpose of Mitigation**	**Means of Implementation**	**Consultation or Approval Required**
		the infilling of artificial drainage channels, cuttings and erosion features and gullies.			

8.8 Assessment of Residual Effects

Residual Construction Effects

8.8.1 The assessment has identified that there are no significant effects with regards to peat and peat hazard risk arising from the construction of the Proposed Development, taking into account mitigation measures implemented in the construction phase (mitigation references: GS05 and GS06). On this basis the result is **Not Significant (Minor adverse)**.

Residual Operational Effects

8.8.2 The assessment has identified that there are no significant effects arising from the operation of the Proposed Development, taking in to account mitigation measures implemented in the operational phase.

Residual Cumulative Construction Effects

8.8.3 No residual cumulative effects in relation to the hydrological, hydrogeological, geological or soil environment are anticipated to occur during the construction phase.

Residual Cumulative Operational Effects

8.8.4 No residual cumulative effects in relation to the hydrological, hydrogeological, geological or soil environment are anticipated to occur during the operational phase.

8.9 Monitoring

Construction Phase Monitoring

8.9.1 Best practice monitoring measures would be set out in the CEMP and PMP (mitigation reference: HH01, GS01 and GS02) to be prepared and implemented by the appointed contractor. These plans would be secured through a suitably worded planning condition and submitted to the SIC for approval prior to the commencement of relevant works. This would include regular inspections of SuDS and watercourses, targeted sampling where required, and prompt reporting and corrective action for any incidents. Pollution and sediment monitoring would be undertaken by the contractor's Environmental Manager (or appointed specialist) in accordance with the PPP (mitigation reference: HH02).

8.9.2 Furthermore, as part of the management of peat slide risk ongoing monitoring of construction activities and key locations on the Site would be undertaken to ensure that mitigation measures required during construction are effective, and to identify any unexpected ground disturbance.

Operational Phase Monitoring

8.9.3 During operation, routine monitoring for pollution and sediment release would be carried out in line with the PPP.

8.9.4 During operation monitoring of key infrastructure locations would continue through Site walkovers and inspections by a geotechnical specialist provided by the maintenance Contractor to look for signs of unexpected ground disturbance in relation to peat slide risk (mitigation reference: GS02).

8.10 Summary of Potential Significant Effects

Table 8.6: Summary of Potential Significant Effects				
Impact	**Likely Significance of Effect**	**Mitigation Proposed**	**Residual Effect**	**Monitoring**
Construction				
Potential alteration to surface water flows and runoff	Not Significant	None beyond embedded and standard mitigation.	Not Significant	Monitoring for potential pollution or sediment disturbance carried out in accordance with the site-specific CEMP and PPP. Inspections of SuDS and watercourses, targeted sampling where required, and prompt reporting and corrective action for any incidents. Pollution and sediment monitoring undertaken by contractor's Environmental Manager (or appointed specialist) in accordance with the PPP.
Potential effect on sedimentation and increased erosion rates	Not Significant	None beyond embedded and standard mitigation.	Not Significant	
Potential chemical pollution	Not Significant	None beyond embedded and standard mitigation.	Not Significant	
Potential for loss/disturbance to peat and carbon rich soils	**Moderate (Significant)**	The mitigation approach for the Proposed Development uses a combination of reuse and restoration which has formed the peat management strategy (as described in **Technical Appendix 8.5: Outline Peat Management Plan (EIAR Volume 4))**. The primary reuse strategy for excavated peat at the Proposed Development is to reinstate temporary construction areas, including the borrow pit, and to restore peat within permanent infrastructure locations (e.g. turbine foundations/hardstand areas), but also use of surplus peat for the restoration and enhancement of habitats at the Site as detailed in **Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**, for example the infilling of	Not Significant	Undertake periodic monitoring during construction.

Table 8.6: Summary of Potential Significant Effects				
Impact	**Likely Significance of Effect**	**Mitigation Proposed**	**Residual Effect**	**Monitoring**
		artificial drainage channels, cuttings and osion features and gullies.		
Peat Slide Risk	**Moderate (Significant)**	Following additional post-consent ground investigation and detailed design, should areas of Moderate Risk of peat slide remain, then micrositing infrastructure away from these areas is recommended. Where micrositing is not practicable then excavation of the peat to remove the potential risk would be required (mitigation reference: GS05).	Not Significant	Ongoing monitoring of construction activities and key locations on the Site would be undertaken to ensure that mitigation measures required during construction are effective, and to identify any unexpected ground disturbance
Operation				
Potential effect on Watercourses and Surface Water Features from: Alteration to surface water flows and runoff	Not Significant	None beyond embedded and standard mitigation.	Not Significant	Routine monitoring for pollution and sediment release would be carried out in line with the PPP.
Sedimentation and increased erosion rates	Not Significant	None beyond embedded and standard mitigation.	Not Significant	
Chemical pollution	Not Significant	None beyond embedded and standard mitigation.	Not Significant	
Potential for loss/disturbance to peat and carbon rich soils	N/A	N/A	N/A	Post construction the maintenance Contractor would provide a geotechnical specialist to undertake periodic Site walkovers to assess for any ground disturbance.
Peat Slide Risk	N/A	N/A	N/A	

9 Traffic, Transport and Access

9.1 Executive Summary

9.1.1 This chapter considers the likely significant effects of the Proposed Development in relation to traffic, transport and access. It has been conducted with reference to relevant legislation and planning policy and the methodology and significance criteria used to assess the effects of the Proposed Development are industry standards as published by the Institution of Sustainability and Environmental Professionals (ISEP). This includes an assessment of the likely significant environmental effects associated with increased traffic generated by construction of the Proposed Development.

9.1.2 To determine appropriate access routes to the Site, detailed consideration and assessment of the surrounding road network was undertaken in the form of a comprehensive desk-based study. This established that the most likely routes for general construction traffic travelling to the Site are:

- The A970 north from Lerwick to Hillside, Voe;
- The A968 north from Hillside, Voe to the B9076 junction at Firth;
- The B9076 west from the A968 junction at Firth to the unadopted road to Shetland Gas Plant; and
- The unadopted road from the B9076 to the Site entrance.

9.1.3 Only traffic impacts during the construction phase have been considered in this assessment. Operational and decommissioning traffic impacts have been scoped out.

9.1.4 It is expected that the turbine components would be transferred by Abnormal Indivisible Load (AIL) vehicles to the Site from the Port facilities at Lerwick, however the Port Sullom Voe is being considered as an alternative.

9.1.5 Baseline traffic data has been obtained for three locations within the traffic, transport and access Study Area: the A970, the A968 and the B9076.

9.1.6 The traffic generated by construction of the Proposed Development (over a 24-month period) would result in a temporary increase in baseline traffic levels. A full programme of anticipated monthly vehicle movements is provided in this chapter.

9.1.7 During the peak month of construction (month 10), it is anticipated that approximately 74 two-way Heavy Goods Vehicle (HGV) movements, and 60 two-way car/Light Goods Vehicle (LGV) movements (associated with workforce travel) would occur daily. This calculation assumes a seven-day working week.

9.1.8 The percentage increase in total traffic on all assessed road links is less than 10 %.

9.1.9 The likely significant environmental effects associated with this increase in traffic have been assessed and are considered **Not Significant**.

9.1.10 A Construction Traffic Management Plan (CTMP) is proposed as a good practice measure. The CTMP would be produced for approval by Shetland Islands Council (SIC) in consultation with Police Scotland to manage and minimise potential environmental effects associated with increased traffic from the construction of the Proposed Development along with cumulative effects.

9.1.11 The CTMP would confirm the route proposals for the AIL vehicles and general construction vehicles, timing of deliveries, route condition survey details and measures proposed to mitigate likely significant transport effects. Examples of measures which could be included in the CTMP are provided in this chapter.

9.1.12 The CTMP would also ensure that there is a line of communication with other construction projects in the area so that high traffic generating activities, such as stone and concrete importation, can be managed to minimise traffic impact.

9.1.13 During the operational phase of the Proposed Development, only a small number of vehicles would attend the Proposed Development on an infrequent basis to undertake inspections or maintenance activities. As such, no likely significant operational effects are anticipated, and no detailed assessment of such effects has been undertaken.

9.1.14 Traffic effects during the decommissioning phase of the Proposed Development are assumed to be less than during the construction phase therefore no detailed assessment of decommissioning effects has been undertaken.

9.1.15 No significant residual effects from construction traffic are predicted, either as a result of the Proposed Development in isolation or cumulatively when other developments are considered as part of the cumulative assessment.

9.2 Introduction

9.2.1 This chapter considers the likely significant effects with respect to traffic, transport and access associated with the construction and operation of Neshion Energy Park ('the Proposed Development').

9.2.2 The Proposed Development is a renewable energy development comprised of up to eight wind turbines, a Battery Energy Storage System (BESS) and associated infrastructure adjacent to Sullom Voe Oil Terminal (SVT) and the Shetland Gas Plant in Shetland, Scotland. The assessment is based on the Proposed Development as described in **Chapter 2: Proposed Development (EIAR Volume 2)**.

9.2.3 The specific objectives of the chapter are to:

- describe the existing traffic and transport baseline context;
- describe the assessment methodology and significance criteria used in completing the impact assessment;
- describe the potential effects, including direct, indirect and cumulative effects;
- describe the mitigation measures proposed to address likely significant effects; and
- assess the residual effects remaining following the implementation of mitigation.

9.2.4 The assessment has been carried out by SYSTRA Ltd (SYSTRA), who have extensive experience in the preparation of Traffic and Transport Environmental Impact Assessment Report (EIAR) chapters. SYSTRA's EIA team has produced Traffic and Transport EIAR chapters and Abnormal Loads Assessment reports for numerous energy developments across Scotland and the wider UK.

9.2.5 This chapter has been reviewed by Alan DeVenny BEng, PhD, CEng, MICE. Alan is a Projects Director with SYSTRA and has over 26 years of experience working in traffic and transport consultancy and over 18 years of experience working on energy projects. Alan has advised on over 250 energy developments delivering EIAR chapters, access assessments, abnormal load assessments, infrastructure design and traffic management plans.

9.2.6 This chapter is supported by the following figures and technical appendices:

- Volume 3a: Figures
  - **Figure 9.1: Study Area**;
  - **Figure 9.2: Traffic Counter Locations**; and
  - **Figure 9.3: Abnormal Loads Route**.
- Volume 4: Technical Appendices
  - Technical Appendix 9.1: Traffic, Transport and Access Methodology; and
  - Technical Appendix 9.2: Abnormal Loads Assessment.

9.2.7 Figures and technical appendices are referenced in the text where relevant.

9.3 Assessment Methodology

Overview

9.3.1 The traffic, transport and access methodology is detailed in **Technical Appendix 9.1: Traffic, Transport and Access Methodology (EIAR Volume 4)** and follows the principles set out in the ISEP document, "Environmental Assessment of Traffic and Movement", 2023[1]. The document is the only guidance document currently available that sets out a methodology for assessing potentially significant environmental impacts where a Proposed Development is likely to give rise to changes in traffic flows.

9.3.2 The guidance suggests that in order to determine the scale and extent of the assessment and the level of impact the development would have on the surrounding road network, the following two 'rules' should be followed.

- Rule 1 – Include highway links where traffic flows would increase by more than 30% (or the number of heavy goods vehicles would increase by more than 30%); and
- Rule 2 – Include highway links of high sensitivity where traffic flows have increased by 10% or more.

9.3.3 These rules are used to identify the road links within the Study Area where a full assessment of environmental effects associated with an intensification in road traffic may be required. It is noted that further consideration should be given to road user and pedestrian safety as well as driver delay effects even if the above thresholds are not exceeded.

Scope of Assessment

Potential Impacts Scoped In

9.3.4 The scope of this chapter is set out in **Table 9.1**. The scope of the assessment has been informed by consultation responses detailed in **Technical Appendix 1.1: Consultation Register (EIAR Volume 4)** and the following guidelines/policies:

[1] Institute of Sustainability and Environmental Professionals (2023). Environmental Assessment of Traffic and Movement. Available at: https://www.iema.net/media/5mrmquib/iema-report-environmental-assessment-of-traffic-and-movement-rev07-july-2023.pdf [accessed on 12/02/2026].

- National Planning Framework 4 (NPF4)2;
- Environmental Assessment of Traffic and Movement1;
- Transport Assessment Guidance3;
- Design Manual for Roads and Bridges4;
- Planning Advice Notice (PAN) 75 – Planning for Transport5; and
- Guidelines on Streamlining Environmental Impact Assessment for Onshore Wind Farms6.

Table 9.1: Impacts Considered within the Assessment

Impact	**Phase***	
	C	O
Increased traffic flows, or changes to the traffic composition and the resulting potential environmental effects (where relevant thresholds are exceeded) relating to severance of communities; road vehicle driver and passenger delay; non-motorised user delay and amenity; fear and intimidation on and by road users; road user and pedestrian safety; and hazardous and large loads.	X	

*C=construction, O=operation and maintenance, X=denotes potential impact considered in assessment.

9.3.5 The chapter assesses cumulative effects as arising from the addition of the Proposed Development to other cumulative developments, which are consented but not yet constructed, or are the subject of a valid planning application. Operational and under construction developments are considered as part of the baseline. Developments close to the end of their operational life will be included as part of the baseline to present a 'worst case scenario'.

9.3.6 The assessment is based on the Proposed Development as described in **Chapter 2: Development Description (EIAR Volume 2)**.

Potential Impacts Scoped Out

9.3.7 The assessment focusses on likely significant effects and as such impacts that are not likely to result in significant effects have been scoped out of the assessment. A summary of the impacts scoped out, together with reasoning for scoping them out is presented in **Table 9.2**.

Table 9.2: Impacts Scoped Out of the Assessment

Impact	**Reasoning**
Increased traffic flows, or changes to the traffic composition, as a result of traffic movements during operation.	Once the Proposed Development is operational, the amount of traffic generated would be minimal, relating to maintenance only.

[2] Scottish Government (2023). National Policy Framework 4. Available at: https://www.gov.scot/publications/national-planning-framework-4/ [accessed on 04/03/2026].

[3]Transport Scotland (2012). Transport Assessment Guidance. Available at: https://www.transport.gov.scot/media/4589/planning_reform_-_dpmtag_-_development_management__dpmtag_ref__17__-_transport_assessment_guidance_final_-_june_2012.pdf [accessed on 04/03/2026].

[4] Department for Transport (2013). Design Manual for Roads and Bridges. Available at: https://www.standardsforhighways.co.uk/dmrb [accessed on 03/2026].

[5] Scottish Government (2005). Planning Advice Note (PAN) 75. Available at: https://www.gov.scot/publications/planning-advice-note-pan-75-planning-transport/ [accessed on 04/03/2026].

[6] Scottish Renewables (2025) Guidelines on Streamlining Environmental Impact Assessment for Onshore Wind Farms. Available at: https://www.scottishrenewables.com/publications/2096-new-eia-report-guidance [accessed on 04/03/2026].

Table 9.2: Impacts Scoped Out of the Assessment	
Impact	**Reasoning**
	Guidance[6] states that "*Operational and decommissioning effects should be scoped out as standard, unless credible concerns are evidenced by the roads authorities*".
Increased traffic flows, or changes to the traffic composition, as a result of traffic movements during decommissioning.	The Proposed Development would have an operational lifespan of approximately 40 years. The Applicant does not seek a time-limited consent. The Proposed Development would subsequently either be decommissioned or repowered. Traffic associated with decommissioning would be anticipated to be significantly less than that generated during construction due to elements such as turbine bases which would be left in-situ. Guidance[6] states that "*Operational and decommissioning effects should be scoped out as standard, unless credible concerns are evidenced by the roads authorities*".

Method of Baseline Characterisation

Extent of the Study Area

9.3.8 The Study Area for the assessment of traffic, transport and access has been predicated on the access point to the Site and the proposed construction traffic routes to the access point from the external road network.

9.3.9 Access to the Site would be taken from the west of the Site via an unadopted road to Shetland Gas Plant (which is accessed via the B9076).

9.3.10 The primary construction traffic route to Site for deliveries arriving via Lerwick would be:

- The A970 north from Lerwick to Hillside, Voe;
- The A968 north from Hillside, Voe to the B9076 junction at Firth;
- The B9076 west from the A968 junction at Firth to the unadopted road to Shetland Gas Plant; and
- The unadopted road from the B9076 to the Site entrance.

9.3.11 It is anticipated that a proportion of construction traffic may travel via the B9076 from Brae, due to the location of quarry facilities in this location.

9.3.12 **Technical Appendix 9.2: Abnormal Loads Assessment (EIAR Volume 4)** provides an assessment of potential route options for delivery of the turbine components by AIL vehicles. It is anticipated that these would be landed at either the Port of Sullom Voe or at Lerwick Harbour. Sullom Voe has not been used to import large-scale onshore wind turbine components before, although it was considered as a potential 'fall back' option by the Viking Wind Farm. Sullom Voe has been acknowledged by SIC as a potential option depending on the life expectancy of the construction jetty which is under review. In 2023, Lerwick Harbour was utilised for the landing and staging of turbine components for the Viking Wind Farm. From Lerwick, the AL vehicles would follow the same route as identified in paragraph 9.3.10.

9.3.13 As such, the Study Area for the assessment of traffic and associated environmental effects, as illustrated in **Figure 9.1: Study Area (EIAR Volume 3a)** is therefore identified as:

- The A970 from Lerwick to Hillside, Voe;
- The A968 from Hillside, Voe to the B9076 junction at Firth;

- The B9076 from Brae to the A968 junction at Firth; and
- The unadopted road to Shetland Gas Plant from the B9075 to the Site entrance.

9.3.14 The main sensitive receptors to increased traffic levels and associated environmental effects are likely to be residents of the isolated dwellings along the road corridors and those who use the roads for leisure and recreational purposes (for example cyclists), particularly as sections of the Study Area road links are part of the National Cycle Network Route 1 (North Sea Cycle Route).

Desk Study

9.3.15 Baseline information such as the characteristics of roads within the Study Area has been obtained using Google Maps[7].

9.3.16 Road collision data for all road links within the Study Area has been obtained from the Crashmap website[8], with data extracted for the most recent five-year period (2020-2024).

9.3.17 Existing traffic count data was obtained from several sources including the Department for Transport (DfT) website[9] and publicly available 2015 survey data contained within the Traffic and Transport EIA Report chapter for the consented Beaw Field Wind Farm[10]. The use of the identified traffic data sources has been agreed with SIC. The locations of the traffic counts are indicated on **Figure 9.2: Traffic Counter Locations (EIAR Volume 3a)**.

9.3.18 The counter locations and sources of data are summarised as:

- Counter 1 - A970: DfT, 2024;
- Counter 2 - A968: Beaw Field, 2015; and
- Counter 3 - B9076: Beaw Field, 2015.

Field Survey

9.3.19 No field surveys have been undertaken as part of this assessment.

Method of Assessment

Overview

9.3.20 Detailed information on the assessment methodology, including criteria for assessing sensitivity of receptors, magnitude of change and cumulative effects, as well as overall significance criteria, is provided in **Technical Appendix 9.1: Traffic, Transport and Access Methodology (EIAR Volume 4)**.

9.3.21 '**Major**' and '**Moderate**' effects are considered to be significant within the context of the EIA Regulations.

Limitations and Assumptions

9.3.22 The assessment provided in this chapter is based upon average traffic flows obtained from the DfT database and relatively historic (2015) survey data. It is expected that there may be localised peaks and seasonal variation in baseline traffic flows on the road network within the

[7] Google (2026). Google Maps. Available at: https://www.google.co.uk/maps [Accessed 17/03/2026]

[8] Crashmap (2022). CrashMap. Available at: https://www.crashmap.co.uk/Search. [Accessed 17/03/2026]

[9] Department for Transport. Map: Count Points. Available at: https://roadtraffic.dft.gov.uk/count-points [Accessed 17/03/2026]

[10] The Scottish Government Energy Consents Unit. Beaw Field Wind Farm. Available at: https://www.energyconsents.scot/ApplicationDetails.aspx?cr=EC00003121 [Accessed 17/03/2026]

Study Area, and it is acknowledged that traffic data from 2015 is relatively dated. Due to ongoing cabling works in the area it has not been possible to undertake traffic surveys to obtain traffic data which would be considered representative of 'normal' baseline circumstances.

9.3.23 The raw survey data from the Beaw Field Wind Farm traffic counts is not publicly available, therefore it is unknown which vehicle types were allocated to the HGV classification and inconsistencies may exist between different data sets regarding proportion of HGV vehicles.

9.3.24 All traffic data has been factored to represent a 2026 baseline scenario using National Road Traffic Forecast (NRTF) low growth rates, in order to take into account general background traffic growth and developments which have been constructed in the intervening time.

9.4 Baseline Conditions

Current Baseline

9.4.1 Road access to the Site is generally of a good standard. It is expected that the majority of construction materials and deliveries would come via Lerwick and its associated harbour, then via the A970, A968 and B9076 to the Site.

A970

9.4.2 The A970 is a two-way single-carriageway road that runs from south to north on Mainland Shetland and provides a route north from Lerwick. The A970 is approximately 6 m in width and is generally subject to the national speed limit, which reduces through settlements - such as 50 mph through Girlsta.

9.4.3 Route 1 of the National Cycle Network (North Sea Cycle Route) utilises sections of the A970 and A968 through Shetland.

A968

9.4.4 The A968 continues north from the A970 at Hillside, Voe, towards Firth where it joins the B9076. The A968 is a two-way single carriageway of approximately 5.5 m in width. The road is subject to a 30 mph through Hillside, Voe and the national speed limit outwith Hillside, Voe.

B9076

9.4.5 The B9076 extends from the village of Brae in the west to the A968 junction at Firth. The B9076 is a two-way single carriageway of approximately 6.5 m in width and is subject to the national speed limit outside of Brae, and 30 mph through Brae. The section from Brae to the U532 junction has been included in the Study Area due to the location of quarry facilities along this route which may be utilised. It is not intended to route general construction traffic through Brae.

Unadopted Road to Shetland Gas Plant

9.4.6 The unadopted road to Shetland Gas Plant would be used to access the Site entrance. However, by nature this road is private and not part of the public road network. It has therefore not been assessed further in this chapter.

Baseline Traffic Flows

9.4.7 **Table 9.3** indicates the two-way Average Daily Traffic (ADT) in the Study Area and the percentage of traffic which is classified as HGVs. The source of the data is also stated. It is

noted that roads in the Study Area can be affected by high seasonal variations due to tourist traffic.

9.4.8 Traffic flows have been factored up where necessary to represent the current baseline year (2026) and the anticipated year of construction (2028) using the NRTF 'low growth' factors.

Table 9.3: Study Area Baseline Traffic Flows

Counter Location	Source	2026 Average Daily Traffic (ADT)	2026 HGV	2028 ADT	2028 HGV	Percentage HGV
1.A970	Dft 2024	3,366	154	3,399	155	4.6%
2.A968	2015 Survey	1,365	382	1,379	385	27.9%
3.B9076	2015 Survey	1,518	408	1,533	412	26.9%

Road Safety

9.4.9 The Crashmap website[8] has been utilised to determine the number of road vehicle collisions that have occurred on the Study Area road network, using the most recent available data (2020 to 2024). The results of this investigation are indicated in **Table 9.4**.

Table 9.4: Study Area Road Collision Statistics

Road Link	Slight	Serious	Fatal
1.A970	7	4	0
2.A968	0	0	0
3.B9076	1	1	0

9.4.10 **Table 9.4** indicates that between 2020 and 2024, there were seven slight and four serious collisions on the A970 between Lerwick and the A968. No collisions were recorded on the A968. On the B9076, there was one slight and one serious collision, both of which were located between Brae and the junction with the U532.

9.4.11 Road vehicle collisions are spread out along the Study Area road network and there are no identified locations where special consideration would be required in relation to the Proposed Development.

Future Baseline

9.4.12 If the Proposed Development was not implemented then it is likely that there would be no significant changes to the traffic and transport situation in the vicinity of the Proposed Development, other than changes to background traffic as a result of general traffic growth and any nearby committed developments.

Summary of Sensitive Receptors

9.4.13 A summary of the receptors considered likely to be affected by the Proposed Development and therefore scoped into the EIAR are set out in **Table 9.5** together with their associated sensitivity. Justification for the sensitivity of each receptor is defined in accordance with **Table 9.1.1** in **Technical Appendix 9.1: Traffic, Transport and Access Methodology (EIAR Volume 4)**.

Table 9.5: Summary of Sensitive Receptors		
Receptor	**Sensitivity**	**Justification**
Users of and residents along the A970	Low	Typically, small settlements with few facilities and no traffic control measures. A-class roads that are able to accommodate HGV traffic.
Users of and residents along the A968, including residents of Hillside, Voe	Medium within Hillside, Voe Low outwith Hillside, Voe	Medium sensitivity within Hillside, Voe due to provision of footways, bus stops and facilities such as the Voe Centre and Voe Public Hall. Outwith Hillside, Voe – low sensitivity. Typically, small settlements with few facilities and no traffic control measures. A-class roads that are able to accommodate HGV traffic.
Users of and residents along the B9076, including residents of Brae	Medium within Brae Low outwith Brae	Medium sensitivity within Brae due to provision of footways, bus stops and facilities such as shops and Gospel Hall. Outwith Brae – low sensitivity. Typically, small settlements with few facilities and no traffic control measures. A-class roads that are able to accommodate HGV traffic. It is acknowledged that the B9076 is not an A class road however it is of a standard suitable to accommodate regular HGV traffic.

9.5 Mitigation

9.5.1 Embedded (primary) mitigation is an inherent part of the project design and comprises measures that have influenced the location and design of the Proposed Development. Embedded mitigation would be secured through the description of the Proposed Development as part of planning consent and is described in the design evolution narrative (refer to **Chapter 3: Design Evolution (EIAR Volume 2)**). Standard (tertiary) mitigation comprises measures that are mandated by legislative requirements or standard best practices and would be required regardless of the outcomes of any EIA.

9.5.2 As the embedded and standard mitigation would form part of the Proposed Development, there would be no consented scenario where the mitigation measures would not be implemented. As such, the assessment of likely significant effects assumes that these mitigation measures are implemented.

9.5.3 The embedded mitigation measures of relevance to traffic, transport and access include:

- The use of on-site borrow pits to supply stone for construction and minimise the volume of imported material and associated vehicle movements.

9.5.4 There is no proposed standard mitigation of relevance to traffic, transport and access.

9.6 Assessment of Likely Effects

Construction Works

Construction Traffic

9.6.1 Potential traffic and transport impacts associated with the Proposed Development would be limited to traffic movements during construction. Vehicles would access the Site transporting construction staff, construction materials, plant items and turbine components. Construction traffic related impacts would be temporary. Construction of the Proposed Development is estimated to take approximately 24 months.

9.6.2 Vehicle movements associated with construction works would include:

- Cars and minibuses for transporting construction personnel to the Site;
- HGVs for pre-construction delivery of site offices, construction equipment and materials;
- AIL vehicles for delivery of the turbine components and base rings;
- Mobile road-going cranes, used for the erection of the turbines; and
- Standard HGVs for transporting electric cable, steel reinforcement for foundations, construction plant fuel and other items and equipment.

9.6.3 In order to calculate a robust scenario, information was gathered regarding the materials required and the size of average loads associated with the construction vehicles (excluding staff vehicles). **Table 9.7** includes an estimate of construction vehicle numbers (HGVs) required for each task during the construction period.

Table 9.7: Estimated Number of HGV Trips during Construction

Construction Task	Vehicle Type	Approximate Number of Loads
Site establishment	Low loader and dump truck	120
General site deliveries	Low loader and dump truck	120
Imported stone *(access roads, crane hardstanding areas, other hardstanding areas)	Dump truck	5321
Reinforcement	Low loader	20
Foundations (off-site batched concrete)	Various	3,900
Cabling deliveries and sand	Low loader	280
Geotextile separators	Low loader	100
Delivery of High Voltage (HV) electrical items	Dump truck	30
Delivery of Battery Energy Storage System (BESS) components	Various	100
Construction of substation	Various	100
Cranes and related lifting equipment	Crane vehicle	40
Turbine components	Abnormal loads	80
Site reinstatement and restoration	Various	60
	Total (one-way trips)	10,271
	Total (two-way trips)	20,542

* assumes 80 % of stone requirements are imported to Site.

9.6.4 The material calculations assume 80% of stone is imported to the Site. The percentage which may potentially be won from an onsite borrow pit could significantly decrease the volume of stone required to be imported to site and therefore the associated number of vehicle trips.

9.6.5 Using the indicative construction programme provided in **Chapter 2: Development Description (EIAR Volume 2)**, and the number of HGV trips indicated in **Table 9.7**, the number of HGV deliveries anticipated at the Site per month of the construction period has been calculated as illustrated in **Table 9.8** and **Table 9.9**.

Table 9.8: Estimated Number of HGV Trips per Month (Months 1 to 12)												
Construction Task/Month	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Site establishment/plant deliveries	20	20	20	20	10	10	10	5	5			
General site deliveries	5	5	5	5	5	5	5	5	5	5	5	5
Imported stone*		600	600	600	600	600	400	400	400	400	400	321
Geotextile separators				25	25	25	25					
Reinforcement							7	7	6			
Foundations							557	557	557	557	557	557
Cabling deliveries and sand										35	35	35
Delivery of HV electrical items							8	8	7	7		
Construction of substation							20	20	20	20	20	
BESS installation and civils								20	20	15	15	15
Cranes and related lifting equipment												15
Delivery of turbine Components												
Site reinstatement and restoration												
Total (one-way trips)	25	625	625	650	640	640	1032	1022	1020	1039	1032	948
Total (two-way trips)	50	1,250	1,250	1,300	1,280	1,280	2,064	2,044	2,040	2,078	2,064	1,896

* assumes 80 % of stone requirements are imported to Site

Table 9.9: Estimated Number of HGV Trips per Month (Months 13 to 24)

Construction Task/ Month	13	14	15	16	17	18	19	20	21	22	23	24	Total (24 months)
Site establishment / plant deliveries													120
General site deliveries	5	5	5	5	5	5	5	5	5	5	5	5	120
Imported stone*													5,321
Geotextile separators													100
Reinforcement													20
Foundations	557												3,900
Cabling deliveries and sand	35	35	35	35	35								280
Delivery of HV electrical items													30
Construction of substation													100
BESS installation and civils	15												100
Cranes and related lifting equipment	15	10											40
Delivery of turbine Components		16	16	16	16	16							80
Site reinstatement and restoration					10	10	10	10	10		5	5	60
Total (one-way trips)	627	66	56	56	66	31	15	15	15	5	10	10	10,271
Total (two-way trips)	1,254	132	112	112	132	62	30	30	30	10	20	20	20,542

* assumes 80 % of stone requirements are imported to Site

9.6.6 **Tables 9.8** and **Table 9.9** indicate that the HGV trips are relatively well spread out over the duration of the construction period. Months 7 to 12 have the highest number of trips due to the overlap between importation of stone (for turbine bases, hardstandings and access tracks) and the importation of materials for on-site batching of concrete (required for turbine bases).

9.6.7 **Table 9.8** indicates that the peak month for traffic generation is month 10 with 1,039 inbound HGV trips (2,078 two-way trips). Assuming a four-week month, this equates to approximately 520 two-way trips per week. Assuming a seven-day working week, this equates to approximately 74 two-way trips per day (37 inbound and 37 outbound). Month 10 is therefore assumed as the 'worst case' in terms of construction traffic generation and is used to assess the impact and effects of the Proposed Development on the transport network in this chapter.

9.6.8 Month 14 to 24 are very light in terms of HGV trips when compared with the earlier months with less than 100 inbound trips per month. For example, month 14 has the highest volume of trips in this period at 132 two-way trips during the month, this would equate to less than three inbound and three outbound trips per day.

Abnormal Loads

9.6.9 **Table 9.9** indicates that AILs would only be transported over five months of the 24-month construction period (months 14 to 18). Assuming 16 inbound AIL vehicle trips per month, this equates to approximately four inbound trips per week. It is also noted that AIL vehicles would retract to the size of an HGV for their return journey once the loads have been delivered to the destination, equating to four inbound AIL trips plus four outbound HGV trips per week.

9.6.10 The movement of AILs may be spread out evenly across the days of the week or concentrated over 2-3 days within each week, therefore meaning that there would be no movements on the remaining days of the week. The schedule of movements of AILs would be agreed upon following discussions with the hauliers, SIC and Police Scotland to ensure the least impact on the road network as possible.

9.6.11 If AILs are transported to Sullom Voe instead of Lerwick then the 80 AILs would not travel on the A970 or A968, instead only travelling a short distance on the B9076 and the unadopted road to Shetland Gas Plant. The AIL route from Lerwick includes a total of 23 pinch points and the route from Sullom Voe contains four.

9.6.12 It is not anticipated that AIL vehicles would give rise to any likely significant environmental effects within the Study Area. As a result, no further assessment of the effect of AIL vehicles has been undertaken.

Borrow Pits

9.6.13 One on-site borrow pit search area has been identified, and it is likely that a proportion of the required stone can be sourced from the borrow pit. It is the Applicant's intention to win stone in this manner in order to construct access tracks and hardstanding areas. The use of the borrow pit would help to reduce HGV levels considerably as stone importation is the highest traffic generating activity as indicated in **Table 9.7**. For the purposes of this assessment, it is assumed that 20 % of stone would be sourced from the borrow pit and 80 % sourced off-site, thus representing a robust case on which to base the worst-case assessment. In reality, it is expected that a significantly higher proportion of stone can be won on-site.

9.6.14 If a greater proportion of stone is won from an onsite borrow pit, then a lower number of vehicle trips would be required to import stone and the peak month traffic numbers would reduce accordingly.

Construction Workforce Travel

9.6.15 In addition to the construction vehicles identified in **Table 9.7**, it is anticipated that there would be up to 60 two-way (30 inbound and 30 outbound) daily vehicle trips by private car/LGV to the Proposed Development associated with construction personnel. This would represent a worst-case scenario of all staff travelling individually, when in reality, an element of car sharing would be expected or shared travel in a works minibus would take place.

9.6.16 Until further detail is known regarding workforce accommodation, it has been assumed that personnel would travel to the Site daily from Lerwick.

Construction Working Hours

9.6.17 The normal working hours would be as follows:

- Monday to Saturday 0700-1900; and
- Sunday 0700-1600.

9.6.18 No works, with the exception of completing concrete pours, turbine delivery, the completion of turbine erection or emergency work, would take place outside these hours. The requirement for out-of-hours work could arise, for example, the need to finish a concrete pour, from delivery and unloading of abnormal loads or health and safety requirements, or to ensure optimal use is made of fair weather windows for the erection of turbine blades and the erection and dismantling of cranes. Any other out-of-hours works would be subject to prior agreement with SIC.

Traffic Distribution

9.6.19 The majority of construction traffic is assumed to route to the Site from Lerwick via the A970, A968 and B9076, including AIL vehicles if the port at Lerwick is utilised. Some construction traffic may travel to the Site from Brae via the B9076.

9.6.20 In order to assess a robust scenario, 100 % of construction traffic has been applied to each of the three road links comprising the Study Area.

Potential Construction Effects

Construction Traffic Impact

9.6.21 **Table 9.10** details the daily percentage increases in traffic flows associated with the construction of the Proposed Development at the traffic counters within the Study Area during the worst-case month (month 10). The location of the traffic counters is illustrated in **Figure 9.2: Traffic Counter Locations (EIAR Volume 3a)**.

Table 9.10: Construction Traffic Impact (Month 10, Two-Way Trips)

	1. A970	2. A968	3. B9076
2028 ADT	3399	1379	1533
2028 HGV	155	385	412
Month 10 daily HGV	74	74	74
Month 10 daily workforce trips	60	60	60
2028 ADT & month 10 total dev traffic	3534	1513	1667
2028 HGV & month 10 dev HGV traffic	229	460	486
Percentage increase in total traffic	3.9 %	9.7 %	8.8 %
Percentage increase in HGV traffic	47.8 %	19.3 %	18.0 %

9.6.22 **Table 9.10** indicates that the temporary increase in daily total and HGV traffic levels during the worst-case month is less than the ISEP 'rule 1' threshold of 30 % at all three counter locations with the exception of the increase in HGV traffic at location 1, the A970.

9.6.23 The increase in HGV traffic at count location 1 (A970) exceeds the ISEP 'rule 1' threshold of 30 % increase in HGV traffic and therefore an assessment of effects has been undertaken for this road link. The 47.8 % increase is mainly attributed to the low baseline level of HGV traffic on this route (155 vehicles per day), with the daily number of construction HGV movements assumed to be approximately 74.

9.6.24 The increase in traffic due to construction of the Proposed Development does not exceed ISEP Rule 1 or Rule 2 on location 2 (A968) and location 3 (B9076) therefore, in accordance with ISEP Guidelines, no further assessment of these road links is required.

Assessment of Effects – A970

9.6.25 In accordance with the ISEP Guidelines, a detailed assessment of location 1: the A970 has been carried out as the increase in HGV traffic exceeds the ISEP 'rule 1' threshold of 30 % increase. The following section provides an assessment of effects based on the potential effects as defined by ISEP guidelines and described in **Technical Appendix 9.1: Traffic, Transport and Access Methodology (EIAR Volume 4)**. For all potential effects, the magnitude of change has been determined by the percentage change in HGV traffic.

Severance of Communities

9.6.26 The ISEP Guidelines advise that "Severance is the perceived division that can occur within a community when it becomes separated by major transport infrastructure".

9.6.27 The potential for traffic associated with the Proposed Development to cause severance is assessed on a case-by-case basis using professional judgement where non-negligible traffic increases are predicted on roads through residential settlements.

9.6.28 Increased severance can result in the isolation of areas of a settlement or individual properties. Severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by infrastructure. Severance effects could equally be applied to residents, motorists or pedestrians.

9.6.29 With reference to **Table 9.10** in this chapter and **Table 9.1.2** in **Technical Appendix 9.1: Traffic, Transport and Access Methodology (EIAR Volume 4)**, the magnitude of the change in HGV level along the A970 is considered to be Minor (30-60 %). As discussed, this is undoubtedly due to the fact that baseline HGV levels are low rather than there being high traffic volumes associated with the construction of the Proposed Development. To put the increase in traffic levels into perspective, 74 total (inbound plus outbound) HGV movements per day equates to 6 additional HGVs per hour over the course of a day.

9.6.30 The sensitivity of the A970 to an increased severance effect is considered to be Low. The A970 is the main arterial route through Mainland Shetland and does not pass through any major settlements. The small, scattered settlement of Girlsta is unlikely to generate pedestrian movements which would be adversely affected by the addition of six HGV movements per hour.

9.6.31 Combining the Minor magnitude of change with the Low sensitivity of the receptor in accordance with **Table 9.1.3** in **Technical Appendix 9.1: Traffic, Transport and Access Methodology (EIAR Volume 4),** equates to a likely significance of effect which is classed as Minor and **Not Significant**.

Road Vehicle Driver and Passenger Delay

9.6.32 Some driver delay may be experienced when construction traffic is accessing the Site. The ISEP Guidelines advise "delays are only likely to be significant when the traffic on the network surrounding the Site is already at, or close to, the capacity of the system".

9.6.33 Traffic delay to non-development traffic may occur at several points on the network surrounding the Site including:

- At the Site entrance where there would be additional turning movements;
- At intersections along the local road network which might be affected by increased traffic; and
- At side roads where the ability to find gaps in traffic may be reduced, thereby lengthening delays.

9.6.34 The magnitude of the change in HGV levels along the A970 is considered to be Minor, as discussed in paragraph 9.6.29 above.

9.6.35 The sensitivity of the A970 to an increased road vehicle driver and passenger delay effect is considered to be Low. The A970 is a good standard two-way carriageway with a low volume of baseline traffic, and therefore has capacity to accommodate a temporary increase in HGV traffic (such as six additional HGV movements per hour) without causing delay to existing road users.

9.6.36 Combining the Minor magnitude of change with the Low sensitivity of the receptor equates to a likely significance of effect which is classed as Minor and **Not Significant**.

Non-Motorised User Delay and Amenity

9.6.37 The ISEP Guidelines advise that, "The assessment of pedestrian delay serves as a proxy for the delay that other modes of non-motorised users may experience when crossing roads".

9.6.38 Traffic volumes, traffic composition, traffic speed, the existence of pedestrian footways and the existence of pedestrian crossings all contribute to the level of general pleasantness experienced by pedestrians and other vulnerable road users.

9.6.39 The main receptor likely to be sensitive to increased non-motorised user delay and amenity effects would be cyclists or other recreational road users, particularly due to sections of the A970 being part of the National Cycle Network Route 1 (North Sea Cycle Route). Therefore, the sensitivity of the A970 to an increased non-motorised user delay and amenity effect is considered to be medium.

9.6.40 Combining the Minor magnitude of change with the Medium sensitivity of the receptor in accordance with **Table 9.1.3 in Technical Appendix 9.1: Traffic, Transport and Access Methodology (EIAR Volume 4)** equates to a likely significance of effect which is classed as Moderate/Minor and **Not Significant**.

Fear and Intimidation on and by Road Users

9.6.41 The ISEP Guidelines state that "a further environmental impact that affects people is the fear and intimidation created by all moving objects", with the extent of fear and intimidation dependent upon:

- The total volume of traffic;
- The heavy vehicle composition;
- The speed these vehicles are passing; and

- The proximity of traffic to people.

9.6.42 The main receptor likely to be sensitive to increased fear and intimidation effects would be cyclists and recreational road users. Following the weighting and calculation system as defined in the ISEP Guidelines, the baseline level of fear and intimidation on the A970 is considered Moderate (Medium) and the magnitude of impact of construction traffic is considered Negligible due to the minor daily increase in HGV traffic.

9.6.43 Combining the Negligible magnitude of change with the Medium sensitivity of the receptor in accordance with **Table 9.1.3 in Technical Appendix 9.1: Traffic, Transport and Access Methodology (EIAR Volume 4)** equates to a likely significance of effect which is classed as Minor and **Not Significant**.

Road User and Pedestrian Safety

9.6.44 Road vehicle collision data for the A970 has been summarised in **Table 9.4**. The data indicates that seven slight and four serious collisions were recorded on the A970 within the Study Area within the most recent five-year period of available data.

9.6.45 An approximate calculation has been undertaken to quantify the level of accident risk that could be expected due to an increase in traffic associated with the Proposed Development. The likelihood of an accident occurring is commonly expressed in accidents per million vehicle-km. Accidents that are appraised in relation to transport are predominantly those in which personal injury is sustained by those involved (personal injury accidents (PIAs)).

9.6.46 For the purpose of this calculation, it has been assumed that the length of the A970 is 27.2 km, which, for the purpose of this assessment can be generally classified as 'rural typical single carriageway' in accordance with the criteria set out within DMRB.

9.6.47 Accident rates from the DMRB for this standard of road are:

- Rural typical single carriageway: 0.404 per million vehicle-km.

9.6.48 Assuming a two-way trip on the 27.2 km route for each of the 10,271 vehicles during the construction period (as set out in **Table 9.8** and **Table 9.9**), a total distance of 558,742.4 km is obtained. Based on the rate above; this suggests 0.2257 accidents during the construction period associated with the additional traffic.

9.6.49 It is considered that the magnitude of this change is Negligible but receptor sensitivity to this effect is always considered as High. When combined, the effect can be classified as Moderate/Minor and **Not Significant**.

Hazardous and Large Loads

9.6.50 There are no hazardous loads associated with the Proposed Development.

9.6.51 The ISEP Guidelines state that, "The movement of large (abnormal) loads is regulated by National Highways and will be subject to separate agreement with the relevant highway authorities and police".

9.6.52 The number and schedule of AIL trips associated with the Proposed Development is detailed in **Table 9.9** and equates to approximately four AILs per week over months 14 to 18 of the construction programme. This impact is considered to be Negligible and **Not Significant**.

Potential Cumulative Construction Effects

9.6.53 Cumulative effects have been considered for other developments in the vicinity of the Proposed Development that are consented or at planning application stage and may share

construction traffic routes and timings with the Proposed Development. Developments that are currently under construction or operational have been excluded as it can be assumed that there would be a very minimal number of trips or no overlap in vehicle trip generation with the Proposed Development.

9.6.54 The potential for cumulative effects has been assessed by reviewing data available within the EIARs for the relevant developments where applicable.

9.6.55 The developments below are considered those which may share potential access routes with the Proposed Development and may give rise to cumulative construction effects. Wind farm developments with three or less turbines have been excluded from the assessment as developments of this size would be highly unlikely to result in significant cumulative construction effects with the Proposed Development.

Beaw Field Wind Farm - Consented

9.6.56 Beaw Field Wind Farm gained consent in 2017 for 17 turbines and is located on the southern half of the island of Yell within the Shetland Islands. In June 2024, permission was granted to extend the date of implementation to 30 November 2026. Information on the project website indicates that Beaw Field Wind Farm is expected to be operational by the end of 2032 and therefore construction may overlap with the Proposed Development.

9.6.57 Information contained within the EIAR for the development indicates that construction traffic may route to the development via the A970, A968 and B9076 therefore sharing these routes with the Proposed Development.

9.6.58 During the peak month of construction for Beaw Field Wind Farm (month 7), a daily average of 38 HGV and 32 car/LGV movements are anticipated.

9.6.59 The increase in total traffic on road links in the Study Area if construction of the Proposed Development and Beaw Field were to coincide would be approximately:

- A970: 6%
- A968: 14%
- B9076: 9%

9.6.60 The A970, A968 and B9076 are good standard two-way carriageway roads with low baseline levels of traffic and therefore capacity to accommodate a temporary increase in traffic without detriment to existing road users and residents, plus construction traffic for both developments would be managed through CTMPs to minimise traffic impacts, therefore cumulative effects with Beaw Field Wind Farm are considered Minor and **Not Significant**.

Energy Isles Wind Farm (Formerly Yell Wind Farm) - Consented

9.6.61 Consent was granted in 2023 for 18 turbines located to the north of the island of Yell. Information contained within the EIAR for the development indicates that all material deliveries would transfer to Yell via the port at Ulsta. The Energy Isles traffic and transport study area is limited to the island of Yell with no construction vehicle movements quantified on Mainland Shetland. The EIAR states that all concrete, raw materials and aggregate would be sourced from Sullom Quarry and vehicles would either be transported to Ulsta by barge from Sullom Voe or Greenhead Base, or would travel by road to Toft, transferring to Ulsta outside peak traffic times by chartered ferry service. AIL and crane trips would originate at either Sullom Voe or Greenhead Base and transfer to Ulsta by barge.

9.6.62 Staff are assumed to reside in temporary accommodation on Yell therefore daily staff trips to site would not impact Mainland Shetland or have a cumulative effect with the Proposed Development construction traffic routes.

9.6.63 The peak month of construction for the Energy Isles development is assumed to be month 12 with an average of 59 daily two-way HGV trips. As with Beaw Field, the Energy Isles Wind Farm is also expected to be operational by 2032.

9.6.64 The increase in total traffic on road links in the Study Area if construction of the Proposed Development and Energy Isles Wind Farm were to coincide would be approximately:

- A970: 6%
- A968: 14%
- B9076: 13%

9.6.65 The A970, A968 and B9076 are good standard two-way carriageway roads with low baseline levels of traffic and therefore capacity to accommodate a temporary increase in traffic without detriment to existing road users and residents, plus construction traffic for both developments would be managed through CTMPs to minimise traffic impacts, therefore cumulative effects with Energy Isles Wind Farm are considered Minor and **Not Significant**.

Mossy Hill Wind Farm – Consented

9.6.66 Mossy Hill Wind Farm gained consent in 2019 for 12 turbines, located near Lerwick in Shetland, and the developer is currently considering a revision to reduce to 8 turbines.

9.6.67 The location of the development near Lerwick means very limited overlap in construction traffic routes with the Proposed Development and therefore cumulative effects with Mossy Hill Wind Farm are considered Negligible and **Not Significant**.

Cumulative Summary

9.6.68 In summary, it is highly unlikely that the peak construction period associated with another wind farm development in the area would overlap with the peak construction period of the Proposed Development as the applications are at different stages in the planning process and each development has varying lengths of construction periods.

9.6.69 The high traffic generating activities, such as the importation of stone and concrete, only occur over a few months of the whole construction period for each development. It is unlikely that the local capacity for concrete and stone production could supply several developments at once, therefore, high traffic generating activities would naturally be staggered.

9.6.70 Furthermore, implementation of a CTMP for each development would ensure that there are open lines of communication with SIC, Police Scotland and other stakeholders, and wind farm developers to monitor the progress of the construction stages. This process would flag whether construction HGV traffic is reaching unacceptable levels and would ensure that action is taken accordingly to minimise effects.

9.7 Additional (Secondary) Mitigation

9.7.1 Additional (secondary) mitigation comprises site-specific mitigation which has been included to reduce the magnitude of impact/significance of effect identified through the EIA.

9.7.2 The assessment provided in this chapter predicts no significant effects relating to traffic, transport and access, however an additional mitigation measure in the form of a CTMP is proposed in line with good practice.

9.7.3 The CTMP would be secured by a planning condition and agreed with SIC prior to construction. The CTMP would be developed in detail and refined by the appointed Principal Contractor. The CTMP would be informed by site-specific assessments and would be monitored throughout the construction period to ensure its effectiveness.

9.7.4 The key objectives of the CTMP would include:

- reducing the number of construction vehicles through coordinated delivery schedules, consolidated ordering, and efficient use of transport resources;
- avoiding or minimising traffic impacts by implementing designated access routes, avoiding peak traffic periods, and using appropriate vehicle types;
- assigning responsibility for traffic, transport and access management to a dedicated individual (e.g. a Site Liaison Officer), who would oversee implementation, monitor compliance, and act as a point of contact for stakeholders;
- managing staff travel, with a focus on reducing single-occupancy car journeys by promoting car sharing, using minibuses where feasible, and providing on-site parking to avoid roadside congestion; and
- ensuring safety and communication, including driver inductions, signage, speed control measures, and engagement with local residents and authorities.

9.7.5 The following is a summary of mitigation measures which could be included in the CTMP:

- The main contractor would develop a logistics plan highlighting the access point for the project, welfare, storage, and compound locations which would be enforced following full Site establishment.
- All contractors would be provided with a Site induction pack containing information on delivery routes and any restrictions on routes.
- Approved haul routes would be identified and protocols put in place to ensure that HGVs adhere to these routes.
- Temporary construction Site signage would be erected along the identified construction traffic routes to warn people of construction activities and associated construction vehicles.
- Road safety briefings would be delivered to on-site personnel and to HGV drivers serving the development so that there is awareness raising around any sensitive locations on the local road network.
- Specific training and disciplinary measures would be established to ensure the highest standards are maintained to prevent construction vehicles from carrying mud and debris onto the carriageway. Wheel wash facilities would be established if necessary.
- All materials delivery lorries (dry materials) would be sheeted to reduce dust and stop spillage on public roads.
- Vehicles would be fitted with identification numbers to allow the public to identify any vehicles that may be speeding or causing specific issues and drivers would be required to pass through sensitive areas at low speed.
- Under no circumstances would HGVs be allowed to lay-up in surrounding roads.

- Any construction material 'lay down' areas would allow for a staggered delivery schedule throughout the day, avoiding peak and unsociable hours (i.e. before 06:00 and after 22:00).
- Construction vehicles would avoid travelling during school drop off and pick up times in areas where this is a concern such as Brae and Voe.
- On-site waste would be minimised through recycling and reuse where possible.
- Car parking for the workforce would be provided entirely within the confines of the Site boundary and would not be permitted on the adjacent unclassified road network, so as to minimise the effect on existing road users. Car sharing would be promoted to construction staff by the contractor during the induction process.
- Emergency procedures would be provided to allow unrestricted use of the unadopted road to Shetland Gas Plant for emergency services.

9.7.6 The CTMP would be monitored by the Site Liaison Officer, who in turn would report to The Roads Authority (SIC) in relation to any required changes to the CTMP.

9.7.7 A summary of the additional mitigation is set out in **Table 9.11**.

Table 9.11: Summary of Additional Mitigation					
Reference	**Phase***	**Description of Mitigation**	**Purpose of Mitigation**	**Means of Implementation**	**Consultation or Approval Required**
TT01	C	Construction Traffic Management Plan (CTMP)	To effectively manage and mitigate as far as possible effects of construction traffic on the local road network.	Secured via planning condition	Approval by SIC

**C=construction, O=operation and maintenance.*

9.8 Assessment of Residual Effects

Residual Construction Effects

9.8.1 No significant construction effects were identified prior to additional mitigation therefore residual construction effects are considered Negligible and **Not Significant**.

Residual Cumulative Construction Effects

9.8.2 No significant cumulative construction effects were identified prior to additional mitigation therefore residual cumulative construction effects are considered Negligible and **Not Significant**.

9.9 Monitoring

Construction Phase Monitoring

9.9.1 Monitoring relating to traffic, transport and access would be agreed with SIC and be specified in the final CTMP, such as wear and tear monitoring of road surfaces.

9.10 Summary of Potential Significant Effects

9.10.1 This assessment has considered the effects on the local road network of traffic associated with the construction phase of the Proposed Development.

9.10.2 The construction programme associated with the Proposed Development is anticipated to cover a 24-month period, during which approximately 10,271 HGVs would access the Site equating to 74 daily total HGV trips (37 inbound plus 37 outbound) during the busiest construction month (month 10). The movement of AILs is not anticipated to exceed 16 per month over the course of five months (with no overlap during the busiest construction months).

9.10.3 A robust assessment was undertaken based on a conservative approach for the total construction traffic movements and the worst-case scenario for each link. The impact of construction traffic could increase total traffic flows along the road links within the Study Area by the following:

- 3.9 % on the A970;
- 9.7 % on the A968; and
- 8.8 % on the B9076.

9.10.4 The percentage increase in HGVs associated with the worst-case month of the construction programme for the Proposed Development could increase HGV levels by the following:

- 47.8 % on the A970;
- 19.3 % on the A968; and
- 18.0 % on the B9076.

9.10.5 The assessment of likely significant effects of the Proposed Development represents a conservative approach assuming that 80 % of stone requirements are imported to the Site and AIL vehicles travelling from Lerwick to the Site. If the volume of stone obtained from the identified borrow pit area is greater than 20%, the volume of stone required to be imported would reduce accordingly which would therefore reduce the vehicle numbers If turbine components can be landed at Sullom Voe rather than Lerwick this would also reduce the impact on the Study Area road network.

9.10.6 As stated previously, the 47.8 % increase in HGV traffic indicated on the A970 is mainly attributable to the low baseline levels of HGV traffic on the route. Furthermore, these increased traffic levels are temporary in nature and are likely to be lower during the other months of construction, with a significant decrease in construction traffic from month 14 to completion.

9.10.7 This chapter concludes that the environmental effects associated with increased traffic as a result of the Proposed Development are deemed to be **Not Significant**, however as a measure of good practice, it is proposed to develop and implement a CTMP.

Table 9.12: Summary of Potential Significant Effects

Impact	Likely Significance of Effect	Mitigation Proposed	Residual Effect	Monitoring
Construction				
Impact of construction traffic on A970	None identified	CTMP as good practice measure	No residual effect	None required
Impact of construction traffic on A968	None identified	CTMP as good practice measure	No residual effect	None required
Impact of construction traffic on B9076	None identified	CTMP as good practice measure	No residual effect	None required
Cumulative Construction				
None identified	None identified	CTMP as good practice measure	No residual effect	None required

10 Chapter 10: Noise

10.1 Executive Summary

10.1.1 A noise assessment was undertaken to determine the likely significant noise effects from the operational and construction phases of the Proposed Development, at nearby noise sensitive receptors.

10.1.2 Baseline noise monitoring was undertaken at five locations proximate to the Proposed Development. The baseline noise data was used to define appropriate construction noise thresholds and inform the operational noise assessment.

10.1.3 Construction noise activities associated with the Proposed Development were assessed in accordance with guidance and acceptable threshold noise values presented within BS 5228. The results show that the predicted noise levels would be below the most stringent of the noise threshold levels detailed in BS 5228. Nevertheless, good practice noise control measures during construction are recommended to keep noise to a minimum and recommendations in accordance with BS 5228 have been made in this chapter.

10.1.4 The operational wind farm noise assessment involved setting the Total ETSU-R-97 Noise Limits (TNL) (which are limits for noise from all wind farms in the area) relative to background noise levels at the nearest noise sensitive receptors, predicting the likely effects (undertaking a cumulative noise assessment where required) and setting Site Specific Noise Limits which could be conditioned for the operation of the Proposed Development on its own.

10.1.5 Predictions of wind turbine noise from the Proposed Development were made in accordance with good practice guidance using a candidate wind turbine, the Vestas V172 7.2 Megawatt (MW), with a hub height of 114 m. Predicted cumulative operational wind farm noise levels indicate that for noise sensitive receptors in the vicinity of the Proposed Development, cumulative wind turbine noise resulting from the nearby proposed Sullom Voe Oil Terminal Wind Turbines (planning application submitted), as well as the Proposed Development, would meet the TNL.

10.1.6 The TNL is applicable to all wind turbines in the area, so Site Specific Noise Limits were also derived to inform conditioning of the noise levels from the Proposed Development on its own. Predicted operational noise levels from the Proposed Development on its own indicate that it would meet the Site Specific Noise Limits at all noise assessment locations.

10.1.7 The use of Site Specific Noise Limits would ensure that the Proposed Development could operate concurrently with the proposed Sullom Voe Oil Terminal Wind Turbines (the only other relevant wind turbine development in the area) and would also ensure that the Proposed Development's individual contribution could be measured and enforced if required.

10.1.8 The candidate wind turbine model for the Proposed Development was chosen in order to allow a representative assessment of the noise impacts. Should the Proposed Development receive consent, the final choice of wind turbine would be subject to a competitive tendering process. The final choice of wind turbine would, however, need to be operated in such a way that the Site Specific Noise Limits presented in the noise assessment and contained in any operational noise condition are met.

10.2 Introduction

10.2.1 This chapter considers the likely significant effects of noise associated with the construction and operation of Neshion Energy Park ('the Proposed Development').

10.2.2 The Proposed Development is a renewable energy development comprised of up to eight wind turbines, a Battery Energy Storage System (BESS) and associated infrastructure adjacent to Sullom Voe Oil Terminal (SVT) and the Shetland Gas Plant in Shetland, Scotland. The assessment is based on the Proposed Development as described in **Chapter 2: Proposed Development (EIAR Volume 2)**.

10.2.3 The specific objectives of the chapter are to:

describe the existing noise baseline context and cumulative context;

describe the assessment methodology and significance criteria used in completing the impact assessment;

describe the potential effects, including direct, indirect and cumulative effects;

describe the mitigation measures proposed to address likely significant effects; and

assess the residual effects remaining following the implementation of mitigation.

10.2.4 The noise assessment has been undertaken by Mathew Robinson and reviewed and approved by Jim Singleton, both of TNEI Services.

10.2.5 Mathew is a Technical Consultant with 3 years of wind farm noise assessment experience. He holds a BEng (Hons) in Mechanical Engineering, a MSc in Advanced Materials Science and Engineering, the Institute of Acoustics (IOA) Diploma in Acoustics and Noise Control and is an Associate Member of the IOA.

10.2.6 Jim is a Specialist Consultant and has been an acoustics consultant for 19 years, with particular expertise in electrical infrastructure and renewable energy generation. He carries out environmental noise propagation modelling and assessment for proposed developments, compliance assessments and noise management for operational developments, technical due diligence exercises, and acts as Expert Witness for appeals and judicial reviews. Projects of note include large scale Battery Energy Storage System (BESS) and solar, energy from waste, pumped hydro, wind farms (including Viking Wind Farm), capacity mechanism schemes, underground cables and overhead lines, substation and converter stations, and hydrogen production. Jim is a full Member of the IOA, holds a first-class BSc (Hons) and the IOA Diploma in Acoustics and Noise Control. He is currently Chair of the BESS and Solar subgroup of the IOAs Renewable Energy Advisory Group.

10.2.7 This chapter is supported by the following figures and technical appendices:

Volume 3a: Figures

- **Figure 10.1: Construction Noise Assessment Study Area**; and
- **Figure 10.2: Operational Noise Assessment Study Area**.

Volume 4: Technical Appendices

- **Technical Appendix 10.1: Construction Noise Report**;
- **Technical Appendix 10.2: Operational Noise Report**; and
- **Technical Appendix 10.3: EIA Assessment Methodology for Noise**.

10.2.8 Figures and technical appendices are referenced in the text where relevant.

10.3 Assessment Methodology

Overview

10.3.1 The construction noise assessment methodology is detailed in **Technical Appendix 10.1: Construction Noise Report (EIAR Volume 4)** and follows the principles set out in BS 5228-1: 2009+A1:2014 Code of practice for noise and vibration control on construction and open sites[1], hereafter referred to as BS 5228.

10.3.2 The operational noise assessment methodology is detailed in **Technical Appendix 10.2: Operational Noise Report (EIAR Volume 4)** and follows the principles set out in ETSU-R-97 The Assessment and Rating of Noise from Wind Farms[2] and the IOA's A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise[3], hereafter referred to as ETSU-R-97 and the IOA Good Practice Guidance (GPG).

10.3.3 The assessments are presented with reference to specific 'areas' within the Site which comprise the turbine array and associated access routes, as described in **Chapter 2: Description of the Proposed Development (EIAR Chapter 2)** and shown on **Figure 10.1 (EIAR Volume 3a)** in relation to the construction noise assessment and **Figure 10.2 (EIAR Volume 3a)** in relation to the operational noise assessment.

Scope of Assessment

Potential Impacts Scoped In

10.3.4 The scope of this chapter is set out in **Table 10.1**. The scope of the assessment has been informed by consultation responses detailed in **Technical Appendix 1.1: Consultation Register (EIAR Volume 4)** and the following guidelines/policies:

National Planning Framework 44;

Onshore Wind Policy Statement 20225; and

Planning Advice Note (PAN) 1/2011: Planning and Noise6 and the associated Technical Advice Note – Assessment of Noise, hereafter referred to as 'the TAN'7.

Table 10.1: Impacts Considered within the Assessment

Impact	Phase*	
	C	O
Construction noise, including cumulative noise	Yes	No
Operational wind turbine noise, including cumulative noise	No	Yes

[1] British Standard BS 5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites' – Part 1: Noise

[2] The Working Group on Noise from Wind Turbines (1996). ETSU-R-97 The Assessment and Rating of Noise From Wind Farms. UK: Energy Technology Support Unit

[3] Institute of Acoustics (2013). A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise'. UK: Institute of Acoustics.

[4] Scottish Government (2023). National Planning Framework 4

[5] Scottish Government (2014). Onshore wind: policy statement 2022 [Online] Available From https://www.gov.scot/publications/onshore-wind-policy-statement-2022/ [Accessed 23rd February 2026]

[6] Scottish Government (2011). PAN 1/2011 Planning and Noise Scotland

[7] The Scottish Government, 2011. Technical Advice Note, Assessment of Noise. Scotland: The Crown.

10.3.5 *C=construction, O=operation and maintenance.

Potential Impacts Scoped Out

10.3.6 The assessment focusses on likely significant effects, and as such, impacts that are not likely to result in significant effects have been scoped out of the assessment. A summary of the impacts scoped out, together with reasoning for scoping them out is presented in **Table 10.2**.

Table 10.2: Impacts Scoped Out of the Assessment

Impact	**Reasoning**
Decommissioning	Activities that occur during the decommissioning of the Proposed Development would typically be the same or less than the noise levels attributable to the construction of the Proposed Development, as activities and plant would be similar in nature. As such it is assumed that if construction noise levels are predicted to be within acceptable levels, then decommissioning noise would also be within acceptable levels.
Construction vibration	BS 5228 provides empirical formulae to estimate the levels of vibration that may be received from particular construction activities, however, the types of activity that are generally recognised as having the potential to generate vibration are restricted to piling, ground compaction and tunnelling. Piling and tunnelling are not relevant to the Proposed Development and the only relevant ground compaction that may occur is in relation to the use of vibratory rollers for the construction of tracks, which would be located at a distance of 900 m from the closest property. No vibration inducing activities would be undertaken in the near vicinity of any sensitive receptors. Accordingly, no vibration effects are anticipated and no further assessment of vibration is required.
Operational vibration	Vibration from turbines is very low, therefore it is not considered necessary to carry out an assessment of vibration. Further information on vibration can be found in Section 3.2 of **Technical Appendix 10.2: Operational Noise Report (EIAR Volume 4)**.
Low frequency noise and infrasound	The term infrasound can be defined as the frequency range below 20 hertz (Hz), while low frequency noise (LFN) is typically in the frequency range 20 – 200 Hz. Wind turbines do not produce significant levels of infrasound or LFN, as supported by the studies discussed in Section 3.2 of **Technical Appendix**

Table 10.2: Impacts Scoped Out of the Assessment	
Impact	**Reasoning**
	10.2: Operational Noise Report (EIAR Volume 4). As such, the assessment of infrasound and LFN from operational wind turbines has been scoped out of the EIAR.
Amplitude Modulation (AM)	It is not possible to undertake predictions of Amplitude Modulation (AM), so it cannot be included in an assessment for a proposed development. Accordingly, AM has been scoped out of the EIAR. Nonetheless, detailed information in respect of AM is included in Section 3.3 of **Technical Appendix 10.2: Operational Noise Report (EIAR Volume 4).** In the event that there were any complaints linked to AM, this could be investigated in terms of the Statutory Nuisance provisions of the Environmental Protection Act 1990.
BESS and substation operational noise	Due to the large separation distances between the noise sensitive receptors and the proposed BESS and substation, operational noise levels from the BESS and substation would be low and no impacts are anticipated. The assessment of BESS and substation operational noise has therefore been scoped out of the EIAR, in agreement with Shetland Islands Council (SIC). Relevant consultation documents are included in Annex 2 of **Technical Appendix 10.2: Operational Noise Report (EIAR Volume 4)**.

Method of Baseline Characterisation

Extent of the Study Area

10.3.7 Noise Sensitive Receptors (NSRs) are properties that are sensitive to noise and, therefore, require protection from nearby noise sources. The Study Area for the assessment of environmental noise is usually defined through the identification of the closest NSRs to the Proposed Development.

10.3.8 The assessment of noise attributable to the Proposed Development considers the nearest and most sensitive NSRs only, on the assumption that if noise levels at these receptors are within the defined limits, then noise levels at NSRs at greater distances should also be within acceptable levels.

10.3.9 The nearest identified NSRs that have a high level of sensitivity are existing residential properties in Toft to the east (approximately 1000 m east of the nearest turbine), and Garth Farmhouse to the south (approximately 2300 m away from the nearest turbine).

10.3.10 Note that, for the purposes of this assessment, residential receptors are classed as properties that lawfully exist and are deemed habitable, or have extant planning permission, at the time of this assessment.

10.3.11 Although the Study Area considers all of the residential NSRs around the Proposed Development, a smaller number of Noise Assessment Locations (NALs) are defined, and these NALs are selected to represent either individual or clusters of NSRs. NALs are the points at which noise levels are calculated and assessed.

10.3.12 The assessment locations for some groups of NSRs are different between the construction and operational noise assessments (as they consider noise occurring from different types of noise sources and noise source locations), therefore, the assessment locations are defined as Construction Noise Assessment Location (CNAL) for the construction noise assessment and NAL for the operational noise assessment.

CONSTRUCTION NOISE - STUDY AREA

10.3.13 The CNALs are shown on **Figure 10.1: Construction Noise Assessment Study Area (EIAR Volume 3a)** and have been selected as representative of the closest NSRs to the Site and Proposed Development construction activities. The CNALs refer to the position on the curtilage of a property where the predictions of construction noise levels have been made. The assessment is undertaken on the assumption that if noise levels are within acceptable levels at the CNALs, then it is reasonable to assume they would also be acceptable at more distant locations.

10.3.14 A total of seven CNALs were chosen, and these are presented within **Technical Appendix 10.1: Construction Noise Report (EIAR Volume 4)**.

10.3.15 The CNALs coordinates are detailed in **Table 10.3** in British National Grid (BNG) format.

Table 10.3: Construction Noise Assessment Locations

CNAL Name	Easting (BNG)	Northing (BNG)
CNAL01 - The Brough	443621	1177399
CNAL02 - Norden	443357	1176504
CNAL03 - White House	443462	1176170
CNAL04 - Lighthouse	440619	1174414
CNAL05 - Garth House	443820	1173893
CNAL06 - Southlee	441177	1173712
CNAL07 - Millburn	443621	1177399

OPERATIONAL NOISE - STUDY AREA

10.3.16 The operational wind farm NALs were defined at an early stage of the project before the turbine layout and the Site was fixed. The NALs were selected considering initial noise level predictions based on early feasibility studies, the scoping layout, and the potential for that layout to evolve i.e. considering the potential for wind turbines to be located elsewhere within the Site. As such, there are now more NALs than are strictly required for the assessment, however, the NALs have remained the same throughout the evolution of the layout design to maintain consistency throughout the project timeline, and are useful to demonstrate the operational noise impacts for all dwellings in the local area i.e. not just those that are the closest.

10.3.17 A total of 15 NALs have been used, and these are shown on **Figure 10.2: Operational Noise Assessment Study Area (EIAR Volume 3a)** and detailed in **Table 10.4.** The NALs are also presented within **Technical Appendix 10.2: Operational Noise Report (EIAR Volume 4)**.

Table 10.4: Operational Noise Assessment Locations

NAL Name	Easting (BNG)	Northing (BNG)
NAL1 - The Brough	443628	1177378
NAL2 - Norden	443591	1176955
NAL3 - Whitehouse	443365	1176504
NAL4 - Lighthouse Cottage	443454	1176169
NAL5 - Fort	444868	1175640
NAL6 - Bankhead Straits	444901	1175470
NAL7 - Hillgrind	444936	1175309
NAL8 - 15 Maidenfield	444835	1175155
NAL9 - Linga	444876	1174856
NAL10 - 10 Leaside	444431	1174228
NAL11 - The Old School	443946	1173993
NAL12 - Moorfield	442489	1172689
NAL13 - Laxobiggin	441471	1173229
NAL14 - Millburn	441177	1173712
NAL15 - Garth Farmhouse*	440630	1174434
*Financially Involved with the Proposed Development		

10.3.18 When defining the Study Area, it is necessary to consider the proximity of other wind turbine developments, as these may contribute to a cumulative noise impact. In this case, there is one other wind turbine development that was identified for consideration within the assessment, which is a proposed development at SVT. This development, however, would share the same closest NSRs to the Proposed Development, therefore, it does not impact the Study Area. The proposed Sullom Voe Oil Terminal Wind Turbines is detailed in **Table 10.5** and shown on **Figure 10.2 Operational Noise Assessment Study Area (EIAR Volume 3a)**.

Table 10.5: Cumulative Wind Developments

Wind Farm	Number of Turbines	Status	Make and Model of Turbine Considered in Modelling
Sullom Voe Oil Terminal Turbines	2	In Planning	Nordex N133 4.8 MW

10.3.19 It is noted that there are several other wind turbine developments located in Shetland and these were considered at the scoping stage of the Proposed Development. However, they were scoped out from the cumulative assessment as they are more than 10 km from the Proposed Development and would not be considered to materially impact the Proposed Development with regard to cumulative noise.

Desk Study

10.3.20 Prior to the commencement of the baseline noise survey, initial desktop noise modelling using the specialist wind energy project modelling software 'windPRO' was performed, which

provides preliminary predictions to help define the Study Area and NSRs to consider as part of the assessment. Based on the preliminary predictions, suitable locations to monitor background noise levels (the proposed noise monitoring locations) are selected, so that they are representative of the local soundscape at the NSRs.

10.3.21 Throughout the noise assessment, tasks such as data analysis and noise predictions were undertaken in appropriate computer software.

10.3.22 The desk-based assessment was informed by data sources such as Google Earth Aerial Imagery and OS Terrain 50 height data and was complemented by site visit observations made as part of the noise survey.

10.3.23 The proposed noise monitoring locations (NML) were included in a consultation letter issued to SIC, and the Environmental Health Officer (EHO) responded on 3rd March 2025 agreeing that the general siting of all the NMLs were appropriate.

Field Survey

10.3.24 A baseline noise survey was undertaken in accordance with the guidance contained within ETSU-R-97 and the IOA GPG for the period 26th February 2025 – 30th April 2025 at five NMLs. The exact monitoring locations were determined on-site after consideration of local noise sources, such as watercourses and vegetation. Detailed information on the NMLs and the baseline survey can be found in Section 5 of **Technical Appendix 10.2: Operational Noise Report (EIAR Volume 4)**. The NMLs are shown on **Figure 10.1: Construction Noise Assessment Study Area (EIAR Volume 3a)** and **Figure 10.2: Operational Noise Assessment Study Area (EIAR Volume 3a)** and are summarised in **Table 10.6**.

Table 10.6: Noise Monitoring Locations (NMLs)

NML Name	Easting (BNG)	Northing (BNG)
NML1 - Norden	443594	1176969
NML2 - Quoy Lee	443495	1176560
NML3 - No.7 Maidenfield	444840	1175035
NML4 - Laxobiggin	441452	1173220
NML5 - Garth Farmhouse	440606	1174452

10.3.25 Simultaneous wind speed and direction data was recorded using a LIDAR unit located on-site. The wind speed data collected at heights of 100 m to 120 m was standardised to a height of 10 m in accordance with good practice guidance.

10.3.26 Rain data was collected using rain gauges that were positioned at NML2 and NML5.

10.3.27 The wind speed, wind direction and rainfall data was collected in ten minute periods synchronised with the noise level measurements to allow analysis of the measured background noise as a function of wind speed and wind direction. All data analysis was undertaken in accordance with ETSU-R-97 and the IOA GPG.

10.3.28 **Table 6.1** of **Technical Appendix 10.2: Operational Noise Report (EIAR Volume 4)** details which NML has been selected for the setting of noise limits at each NAL.

Method of Assessment

Overview

10.3.29 Detailed information on the noise assessment methodology is provided in **Technical Appendix 10.1: Construction Noise Report (EIAR Volume 4)** and **Technical Appendix 10.2: Operational Noise Report (EIAR Volume 4)**.

10.3.30 Detailed information on the EIAR assessment methodology, including criteria for assessing sensitivity of receptors, magnitude of impact and cumulative effects, as well as overall significance criteria is provided in **Technical Appendix 10.3: EIA Assessment Methodology for Noise (EIAR Volume 4)**.

Limitations and Assumptions

10.3.31 As described in Section 3.4 of **Technical Appendix 10.1: Construction Noise Report (EIAR Volume 4)**, several assumptions have been made when predicting likely construction noise levels. These assumptions are considered to result in 'worst case' noise predictions, and in practice, construction noise levels are likely to be lower than predicted for much of the construction period. Specifically:

In accordance with ISO 9613-2, all assessment locations are modelled as downwind of all noise sources and propagation calculations are based on a moderate ground-based temperature inversion, such as commonly occurs at night;

The predicted barrier attenuation provided by local topography, embankments, walls, buildings and other structures in the intervening ground between source and receiver can only be approximated and not all barrier attenuation will have been accounted for;

Unless specifically stated, the modelled scenarios assume all noise sources are operating continuously and simultaneously, estimating a worst-case noise level; and

All mobile plant assumed to be working on tracks (excavators, dozers, rollers etc.) have been modelled as moving point sources along their anticipated movement paths and the sound power level of the source is effectively averaged out across the length of the entire line. This will give an approximation of the overall noise levels from mobile plant at receptor locations; however, in reality noise levels would fluctuate as construction plant and activities move around in their activity areas.

10.3.32 For operational wind farm noise, a candidate wind turbine has been used for predictions from the Proposed Development. The final model of wind turbine to be used may differ from that presented here, however the operational noise levels from the Proposed Development would have to comply with the noise limits imposed for any model of wind turbine, should planning permission be granted.

10.3.33 In regards to the SVT influence on background noise, it is not known how the future baseline is likely to alter. It is anticipated that development will evolve at SVT, however, whether that would result in lower or higher noise levels is not possible to determine at this stage, as no plans are known at this time.

10.4 Baseline Conditions

Current Baseline

10.4.1 The measured baseline data has been analysed for use in both the BS 5228 construction noise assessment and the ETSU-R-97 operational noise assessment.

10.4.2 In order to inform the construction noise assessment the Ambient Noise Level (as defined in BS 5228) was calculated for each NML.

10.4.3 **Table 10.7** details the average LAeq(t) noise level for each NML, after filtering for rainfall events and windspeeds of 5 m/s and above. The levels were calculated for each of the periods defined in BS 5228 for weekday and weekend daytime, evening and night-time.

Table 10.7: Typical Ambient Noise Levels, Laeq(T) for Each NML (Rounded to Nearest 5 dB)

Noise Monitoring Location (NML)	**Daytime M - F** **Weekdays** **07:00 - 19:00**	**Daytime Saturday** **Saturday** **07:00 - 13:00**	**Evenings** **Weekdays** **19:00 - 23:00**	**Weekend** **Saturday** **13:00 - 23:00** **Sunday** **07:00 - 23:00**	**Night-time** **All days** **23:00 - 07:00**
NML1 - Norden	35	35	30	30	30
NML2 - Quoy Lee	50	50	40	45	45
NML3 - No.7 Maidenfield	35	35	30	40	30
NML4 - Laxobiggin	45	45	45	45	45
NML5 - Garth Farmhouse	55	60	50	55	50

10.4.4 The ambient noise level can be used to define appropriate Threshold Values (as detailed in BS 5228-1), which the assessment is made against. Three categories of thresholds are available, with Category A having the lowest (most stringent) thresholds and Category C having the highest thresholds. Detail regarding the threshold values are included in **Technical Appendix 10.1: Construction Noise Report**.

10.4.5 With due regard to the Ambient Noise Levels presented in **Table 10.7** the Category A noise threshold values have been adopted for all NSRs, however, it should be noted that the noise levels measured at NML4 indicated that Category B thresholds could be used during weekend and night-time periods. Similarly, at NML5, Category B thresholds could be used during the weekend and Category C thresholds during the night-time. Adopting the Category A threshold levels for all receptors and for all time periods, therefore, provides a conservative approach to the assessment. How the thresholds relate to the EIA assessment is detailed in **Technical Appendix 10.3: EIA Assessment Methodology for Noise (EIAR Volume 4)**.

10.4.6 In order to inform the operational noise assessment, the Background Noise Level (as defined in ETSU-R-97) was calculated for each NML, as detailed in **Table 10.8** and **Table 10.9**.

10.4.7 Further information regarding the noise analysis can be found in Section 5 of **Technical Appendix 10.2: Operational Noise Report (EIAR Volume 4)**.

Table 10.8: Summary of Prevailing ETSU-R-97 Background Noise Levels During Quiet Daytime Periods ($L_{A90,\ 10MINS}$ dB)	
Noise Monitoring	**Wind Speed (ms^{-1}) as standardised to 10 m height**

Table 10.8: Summary of Prevailing ETSU-R-97 Background Noise Levels During Quiet Daytime Periods ($L_{A90, 10MINS}$ dB)												
Location (NML)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
NML1 - Norden	23.2	23.8	24.7	25.9	27.3	29.0	30.9	32.9	35.1	37.3	39.6	41.8
NML2 - Quoy Lee	29.5	29.7	30.3	31.3	32.5	34.0	35.8	37.7	39.9	42.1	44.4	46.8
NML3 - No.7 Maidenfield	20.6	22.3	24.2	26.2	28.3	30.5	32.8	35.1	37.4	39.8	42.2	44.6
NML4 - Laxobiggin	34.9	34.9	34.9	35.0	35.5	36.5	37.8	39.3	41.2	43.2	45.4	47.6
NML5 - Garth Farmhouse	45.1	45.2	45.5	46.0	46.6	47.3	48.1	49.1	50.1	51.2	52.4	53.7

Table 10.9: Summary of Prevailing ETSU-R-97 background noise levels during night-time periods ($L_{A90, 10MINS}$ dB)												
Noise Monitoring Location (NML)	**Wind Speed (ms^{-1}) as standardised to 10 m height**											
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
NML1 - Norden	23.2	23.9	24.9	26.0	27.3	28.8	30.3	32.1	33.9	35.8	37.8	39.8
NML2 - Quoy Lee	28.8	28.8	28.8	29.3	30.4	31.8	33.6	35.7	38.0	40.4	43.0	45.5
NML3 - No.7 Maidenfield	17.8	20.2	22.5	24.8	27.0	29.3	31.5	33.7	35.9	38.2	40.4	42.7
NML4 - Laxobiggin	33.9	33.9	33.9	34.3	35.1	36.1	37.5	39.1	40.8	42.7	44.8	46.8
NML5 - Garth Farmhouse	32.9	37.4	41.1	44.0	46.3	48.0	49.3	50.2	50.9	51.4	51.8	52.4

Future Baseline

10.4.8 It is possible that noise propagation and resulting noise immission levels could change over the life of the Proposed Development due to climate change (as noise attenuation is influenced by air temperature, relative humidity and ground conditions). However, noise limits are set based on current background noise levels in the absence of wind turbine noise and would be set for the lifetime of the project. The operator would be required to meet them for the duration of the consent.

10.5 Mitigation

10.5.1 Embedded (primary) mitigation is an inherent part of the project design and comprises measures that have influenced the location and design of the Proposed Development.

10.5.2 Embedded mitigation would be secured through the description of the Proposed Development as part of planning consent and is described in the design evolution narrative (refer to **Chapter 3: Design Evolution (EIAR Volume 2)**).

10.5.3 Standard (tertiary) mitigation comprises of measures that are mandated by legislative requirements or standard best practices and would be required regardless of the outcomes of any EIA.

10.5.4 There are no embedded mitigation measures in respect of construction noise.

10.5.5 The embedded mitigation measures of relevance to operational noise relate to the setting of noise limits that are defined from the baseline survey:

The calculated noise limits presented in this Chapter and **Technical Appendix 10.2: Operational Noise Report (EIAR Volume 4)** restricts the noise output of the development, regardless of the final turbine specification.

Throughout the design process, the layout of the Proposed Development was reviewed to optimise turbine numbers and locations, whilst ensuring that the calculated noise limits could be met.

10.5.6 A summary of the standard mitigation considered for the noise assessment is set out in **Table 10.10**.

Table 10.10: Summary of Standard Mitigation

Reference	Phase*	Description	Purpose of Mitigation
NV01	C	Best practice noise control measures, as detailed in BS 5228-1:2014, will be included in the CEMP.	Used to minimise construction noise impacts

*C=construction, O=operation and maintenance and D=decommissioning.

10.5.7 Further detail regarding the best practice measures to be included in the CEMP are provided in **Technical Appendix 10.1: Construction Noise Report (EIAR Volume 4)**.

10.6 Assessment of Likely Effects

Potential Construction Effects

10.6.1 Construction of the Proposed Development would be undertaken in several successive phases. During each phase the plant and equipment, and the associated on-site movements, would influence the noise generated. The selection of plant and equipment to be used would be determined by the main contractor and detailed arrangements for on-site management would be decided at that time. The assessment has therefore been based upon a typical selection of plant for a wind farm project of this size. Full details of the construction noise assessment inclusive of the selected plant, modelled scenarios, and predicted noise levels can be found in **Technical Appendix 10.1: Construction Noise Report (EIAR Volume 4)**.

10.6.2 The core hours for construction activity would be between the hours of 07:00 to 19:00 Monday to Saturday and 07:00 to 16:00 Sunday. No scheduled construction is anticipated during the night-time, although, there may be a requirement for some plant to be operational during the night-time, for example, a portable generator to provide lighting.

10.6.3 Consultation with SIC confirmed that, due to the remote location of the Proposed Development, the proposed hours for construction, including Sunday working would be acceptable and noted that noise generated during Sunday working should be assessed against the Evening and Weekend threshold levels defined in Table E.1 of BS 5228. This same

threshold category would also apply to bank holidays, which SIC has confirmed should be treated as part of the Evening and Weekend period.

10.6.4 **Chapter 2: Development Description (EIAR Volume 2)** describes the outline tasks that would be undertaken during the construction period, which is estimated to last 24 months.

10.6.5 Noise propagation modelling has been undertaken for the period month 1 to month 22, considering the key activities that are likely to occur throughout the construction period. This is based on the indicative information presented in **Chapter 2: Description of Proposed Development (EIAR Volume 2)** and detailed in in this report.

10.6.6 The modelled scenarios consider the works planned during the core construction hours for each month of the construction period. A night-time scenario that considers the use of diesel generators for lighting rigs and welfare facilities has also been modelled. The construction activities modelled in each scenario are summarised below.

10.6.7 Details of the items of plant included in each modelled scenario, as well as the noise data for each modelled noise source, are included in **Annex 3: Noise Model Data** of **Technical Appendix 10.1: Construction Noise Report (EIAR Volume 4)**.

Month 1: Site establishment begins with the construction of the access track to the borrow pit search area.

Month 2: Road upgrades close to the site entrance are being undertaken and the borrow pit becomes operational.

Month 3: Road upgrades continue and construction of the main access track commences, heading up from the site entrance towards Turbine (T) 1. The construction compound is established and brought into operation. Operation of the borrow pit continues and is included in the modelled scenarios for all months up to and including month 12.

Month 4: The access track construction continues in the direction of the substation and BESS, and towards T4. Activities within the construction compound continue and are included in the modelled scenarios for all months up to and including month 22.

Month 5: Construction of the hardstandings at T1 commence and the remainder of the access track is completed.

Month 6: Construction of the hardstandings moves to T2.

Month 7: Construction of the hardstandings moves to T3 and work on the turbine foundations begin at T1 and T2. This includes excavation and concrete pouring. Construction of the substation commences.

Months 8 to 13: Work progress in sequence between each of the turbine locations, consisting of construction of hardstandings, excavation of foundations, and the pouring of concrete. Construction of the BESS commences. Construction of the substation and BESS continues up to and including month 14.

Month 14: Turbine erection commences at T1.

Months 15 to 21: Turbine delivery and erection continues up to and including Month 22.

Month 22: Turbine deliveries have finished and the final turbine is being erected.

10.6.8 For much of the working day the noise associated with construction activities would be less than predicted, as the assessment has assumed all equipment is constantly operating at full power, whereas in practice equipment load and precise location varies. Therefore, the predicted construction noise levels presented herein represent a conservative estimate of the

likely noise levels that would be experienced at NSRs during the construction of the Proposed Development.

10.6.9 The calculated noise immission levels can be found in **Table 4.1**, within **Technical Appendix 10.1: Construction Noise Report (EIAR Volume 4)**.

10.6.10 The predicted construction noise levels are below the Category A daytime threshold levels of 65 dBA at all CNALs. The immission levels are also below the evening and weekend threshold levels of 55 dBA at all CNALs. The predicted night-time noise levels do not exceed the night-time threshold level of 45 dBA.

10.6.11 No activities are proposed outside of the core construction hours, however, there may be occasions when activity is required to continue into the BS 5228 Evening period, for example, for health and safety reasons or to complete tasks within a weather window. These include turbine erection, concrete pours and Abnormal Indivisible Load (AIL) deliveries. The predicted noise levels for all of these activities are below the Category A Evening and Weekend threshold value of 55 dBA.

10.6.12 No construction activities are anticipated during the night-time, however, some generation plant or similar may operate during night-time hours within the construction compounds. The predicted noise levels for the modelled night-time scenario are below the night-time Category A threshold value of 45 dBA.

10.6.13 The construction noise levels are below the BS 5228 threshold levels at all CNALs for all time periods, which is classified as a Minor effect (as described in **Technical Appendix 10.3: EIA Assessment Methodology for Noise (EIAR Volume 4)**. As such construction noise effects are **Not Significant**.

Potential Operational Effects

Setting the Total ETSU-R-97 Noise Limits (Stage 1)

10.6.14 Based on the prevailing background noise levels, the Total ETSU-R-97 Noise Limits have been established for each of the NALs detailed in **Table 10.4** and these are presented in **Table 10.11** and **Table 10.12**.

10.6.15 The Total ETSU-R-97 Noise Limits are based on the greater of a fixed minimum limit of 40 dB or background plus 5 dB for the daytime, and 43 dB or background plus 5 dB for the night-time. For financially involved NALs, the Total ETSU-R-97 Noise Limits have been established based on the greater of a fixed minimum limit of 45 dBA (daytime and night-time) or background plus 5 dBA, whichever is greater.

Predicting the likely effects from cumulative (Stage 2)

10.6.16 The predicted cumulative noise levels were compared to the Total ETSU-R-97 Noise Limits, as shown in **Table 10.11** and **Table 10.12**. The predicted cumulative turbine noise immission levels are below the Total ETSU-R-97 Noise Limits under all conditions during both daytime and night-time periods for all NALs. As such, cumulative operational noise is **Not Significant**.

Table 10.11: ETSU-R-97 Compliance Table – Likely Cumulative Noise – Daytime													
Noise Assessment Location (NAL)		**Wind Speed (ms^{-1}) as standardised to 10 m height**											
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
NAL1 - The Brough	TNL LA90	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.1	42.3	44.6	46.8
	Cumulative Predictions LA90	-	-	-	27.8	31.6	35.2	36.4	36.4	36.4	36.4	36.4	36.4
	Exceedance Level	-	-	-	-12.2	-8.4	-4.8	-3.6	-3.6	-3.7	-5.9	-8.2	-10.4
NAL2 - Norden	TNL LA90	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.1	42.3	44.6	46.8
	Cumulative Predictions LA90	-	-	-	28.2	32.0	35.5	36.8	36.8	36.8	36.8	36.8	36.8
	Exceedance Level	-	-	-	-11.8	-8.0	-4.5	-3.2	-3.2	-3.3	-5.5	-7.8	-10.0
NAL3 - Whitehouse	TNL LA90	40.0	40.0	40.0	40.0	40.0	40.0	40.8	42.7	44.9	47.1	49.4	51.8
	Cumulative Predictions LA90	-	-	-	29.6	33.4	37.0	38.2	38.2	38.2	38.2	38.2	38.2
	Exceedance Level	-	-	-	-10.4	-6.6	-3.0	-2.6	-4.5	-6.7	-8.9	-11.2	-13.6
NAL4 - Lighthouse Cottage	TNL LA90	40.0	40.0	40.0	40.0	40.0	40.0	40.8	42.7	44.9	47.1	49.4	51.8
	Cumulative Predictions LA90	-	-	-	28.0	31.9	35.4	36.6	36.6	36.6	36.6	36.6	36.6
	Exceedance Level	-	-	-	-12.0	-8.1	-4.6	-4.2	-6.1	-8.3	-10.5	-12.8	-15.2
NAL5 - Fort	TNL LA90	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.1	42.4	44.8	47.2	49.6
	Cumulative Predictions LA90	-	-	-	20.8	24.6	28.2	29.4	29.4	29.4	29.4	29.4	29.4
	Exceedance Level	-	-	-	-19.2	-15.4	-11.8	-10.6	-10.7	-13.0	-15.4	-17.8	-20.2

Table 10.11: ETSU-R-97 Compliance Table – Likely Cumulative Noise – Daytime													
Noise Assessment Location (NAL)		**Wind Speed (ms^{-1}) as standardised to 10 m height**											
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
NAL6 - Bankhead Straits	TNL LA90	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.1	42.4	44.8	47.2	49.6
	Cumulative Predictions LA90	-	-	-	20.4	24.2	27.8	29.0	29.0	29.0	29.0	29.0	29.0
	Exceedance Level	-	-	-	-19.6	-15.8	-12.2	-11.0	-11.1	-13.4	-15.8	-18.2	-20.6
NAL7 - Hillgrind	TNL LA90	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.1	42.4	44.8	47.2	49.6
	Cumulative Predictions LA90	-	-	-	19.3	23.2	26.8	28.0	28.0	28.0	28.0	28.0	28.0
	Exceedance Level	-	-	-	-20.7	-16.8	-13.2	-12.0	-12.1	-14.4	-16.8	-19.2	-21.6
NAL8 - 15 Maidenfield	TNL LA90	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.1	42.4	44.8	47.2	49.6
	Cumulative Predictions LA90	-	-	-	22.1	25.9	29.5	30.7	30.7	30.7	30.7	30.7	30.7
	Exceedance Level	-	-	-	-17.9	-14.1	-10.5	-9.3	-9.4	-11.7	-14.1	-16.5	-18.9
NAL9 - Linga	TNL LA90	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.1	42.4	44.8	47.2	49.6
	Cumulative Predictions LA90	-	-	-	20.8	24.6	28.2	29.4	29.4	29.4	29.4	29.4	29.4
	Exceedance Level	-	-	-	-19.2	-15.4	-11.8	-10.6	-10.7	-13.0	-15.4	-17.8	-20.2
NAL10 - 10 Leaside	TNL LA90	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.1	42.4	44.8	47.2	49.6
	Cumulative Predictions LA90	-	-	-	17.3	21.2	24.8	26.0	26.0	26.0	26.0	26.0	26.0
	Exceedance Level	-	-	-	-22.7	-18.8	-15.2	-14.0	-14.1	-16.4	-18.8	-21.2	-23.6

Table 10.11: ETSU-R-97 Compliance Table – Likely Cumulative Noise – Daytime													
Noise Assessment Location (NAL)		**Wind Speed (ms^{-1}) as standardised to 10 m height**											
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
NAL11 – The Old School	TNL LA90	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.1	42.4	44.8	47.2	49.6
	Cumulative Predictions LA90	-	-	-	17.7	21.6	25.2	26.4	26.4	26.4	26.4	26.4	26.4
	Exceedance Level	-	-	-	-22.3	-18.4	-14.8	-13.6	-13.7	-16.0	-18.4	-20.8	-23.2
NAL12 - Moorfield	TNL LA90	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.1	42.4	44.8	47.2	49.6
	Cumulative Predictions LA90	-	-	-	18.4	22.5	26.2	27.3	27.3	27.3	27.3	27.3	27.3
	Exceedance Level	-	-	-	-21.6	-17.5	-13.8	-12.7	-12.8	-15.1	-17.5	-19.9	-22.3
NAL13 - Laxobiggin	TNL LA90	40.0	40.0	40.0	40.0	40.5	41.5	42.8	44.3	46.2	48.2	50.4	52.6
	Cumulative Predictions LA90	-	-	-	20.3	24.4	28.1	29.2	29.2	29.2	29.2	29.2	29.2
	Exceedance Level	-	-	-	-19.7	-16.1	-13.4	-13.6	-15.1	-17.0	-19.0	-21.2	-23.4
NAL14 - Millburn	TNL LA90	40.0	40.0	40.0	40.0	40.5	41.5	42.8	44.3	46.2	48.2	50.4	52.6
	Cumulative Predictions LA90	-	-	-	21.8	26.0	29.7	30.8	30.8	30.8	30.8	30.8	30.8
	Exceedance Level	-	-	-	-18.2	-14.5	-11.8	-12.0	-13.5	-15.4	-17.4	-19.6	-21.8
NAL15 - Garth Farmhouse*	TNL LA90	50.1	50.2	50.5	51.0	51.6	52.3	53.1	54.1	55.1	56.2	57.4	58.7
	Cumulative Predictions LA90	-	-	-	23.5	27.7	31.5	32.5	32.5	32.5	32.5	32.5	32.5
	Exceedance Level	-	-	-	-27.5	-23.9	-20.8	-20.6	-21.6	-22.6	-23.7	-24.9	-26.2

Table 10.11: ETSU-R-97 Compliance Table – Likely Cumulative Noise – Daytime												
Noise Assessment Location (NAL)	**Wind Speed (ms^{-1}) as standardised to 10 m height**											
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
*Financially Involved with the Proposed Development Note: For the cumulative noise predictions, the noise model considers the range of noise data available for each turbine type modelled. For some turbines noise data was not available for wind speeds less than 4 ms^{-1} therefore no cumulative predictions are included for wind speeds less than 4 ms^{-1}.												

Table 10.12: ETSU-R-97 Compliance Table – Likely Cumulative Noise – Night-Time													
Noise Assessment Location (NAL)		**Wind Speed (ms^{-1}) as standardised to 10 m height**											
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
NAL1 - The Brough	TNL LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.8
	Cumulative Predictions LA90	-	-	-	27.8	31.6	35.2	36.4	36.4	36.4	36.4	36.4	36.4
	Exceedance Level	-	-	-	-15.2	-11.4	-7.8	-6.6	-6.6	-6.6	-6.6	-6.6	-8.4
NAL2 - Norden	TNL LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.8
	Cumulative Predictions LA90	-	-	-	28.2	32.0	35.5	36.8	36.8	36.8	36.8	36.8	36.8
	Exceedance Level	-	-	-	-14.8	-11.0	-7.5	-6.2	-6.2	-6.2	-6.2	-6.2	-8.0
NAL3 - Whitehouse	TNL LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.4	48.0	50.5
	Cumulative Predictions LA90	-	-	-	29.6	33.4	37.0	38.2	38.2	38.2	38.2	38.2	38.2
	Exceedance Level	-	-	-	-13.4	-9.6	-6.0	-4.8	-4.8	-4.8	-7.2	-9.8	-12.3
NAL4 - Lighthouse Cottage	TNL LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.4	48.0	50.5
	Cumulative Predictions LA90	-	-	-	28.0	31.9	35.4	36.6	36.6	36.6	36.6	36.6	36.6
	Exceedance Level	-	-	-	-15.0	-11.1	-7.6	-6.4	-6.4	-6.4	-8.8	-11.4	-13.9
NAL5 - Fort	TNL LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.2	45.4	47.7
	Cumulative Predictions LA90	-	-	-	20.8	24.6	28.2	29.4	29.4	29.4	29.4	29.4	29.4
	Exceedance Level	-	-	-	-22.2	-18.4	-14.8	-13.6	-13.6	-13.6	-13.8	-16.0	-18.3
NAL6 - Bankhead Straits	TNL LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.2	45.4	47.7
	Cumulative Predictions LA90	-	-	-	20.4	24.2	27.8	29.0	29.0	29.0	29.0	29.0	29.0
	Exceedance Level	-	-	-	-22.6	-18.8	-15.2	-14.0	-14.0	-14.0	-14.2	-16.4	-18.7
NAL7 - Hillgrind	TNL LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.2	45.4	47.7

Table 10.12: ETSU-R-97 Compliance Table – Likely Cumulative Noise – Night-Time													
Noise Assessment Location (NAL)		**Wind Speed (ms^{-1}) as standardised to 10 m height**											
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Cumulative Predictions LA90	-	-	-	19.3	23.2	26.8	28.0	28.0	28.0	28.0	28.0	28.0
	Exceedance Level	-	-	-	-23.7	-19.8	-16.2	-15.0	-15.0	-15.0	-15.2	-17.4	-19.7
NAL8 - 15 Maidenfield	TNL LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.2	45.4	47.7
	Cumulative Predictions LA90	-	-	-	22.1	25.9	29.5	30.7	30.7	30.7	30.7	30.7	30.7
	Exceedance Level	-	-	-	-20.9	-17.1	-13.5	-12.3	-12.3	-12.3	-12.5	-14.7	-17.0
NAL9 - Linga	TNL LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.2	45.4	47.7
	Cumulative Predictions LA90	-	-	-	20.8	24.6	28.2	29.4	29.4	29.4	29.4	29.4	29.4
	Exceedance Level	-	-	-	-22.2	-18.4	-14.8	-13.6	-13.6	-13.6	-13.8	-16.0	-18.3
NAL10 - 10 Leaside	TNL LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.2	45.4	47.7
	Cumulative Predictions LA90	-	-	-	17.3	21.2	24.8	26.0	26.0	26.0	26.0	26.0	26.0
	Exceedance Level	-	-	-	-25.7	-21.8	-18.2	-17.0	-17.0	-17.0	-17.2	-19.4	-21.7
NAL11 – The Old School	TNL LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.2	45.4	47.7
	Cumulative Predictions LA90	-	-	-	17.7	21.6	25.2	26.4	26.4	26.4	26.4	26.4	26.4
	Exceedance Level	-	-	-	-25.3	-21.4	-17.8	-16.6	-16.6	-16.6	-16.8	-19.0	-21.3
NAL12 - Moorfield	TNL LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.2	45.4	47.7

Table 10.12: ETSU-R-97 Compliance Table – Likely Cumulative Noise – Night-Time												
Noise Assessment Location (NAL)		**Wind Speed (ms^{-1}) as standardised to 10 m height**										
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Cumulative Predictions LA90	-	-	-	18.4	22.5	26.2	27.3	27.3	27.3	27.3	27.3	27.3
	Exceedance Level	-	-	-	-24.6	-20.5	-16.8	-15.7	-15.7	-15.7	-15.9	-18.1	-20.4
NAL13 - Laxobiggin	TNL LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.1	45.8	47.7	49.8	51.8
	Cumulative Predictions LA90	-	-	-	20.3	24.4	28.1	29.2	29.2	29.2	29.2	29.2	29.2
	Exceedance Level	-	-	-	-22.7	-18.6	-14.9	-13.8	-14.9	-16.6	-18.5	-20.6	-22.6
NAL14 - Millburn	TNL LA90	43	43	43	43	43	43	43	44.1	45.8	47.7	49.8	51.8
	Cumulative Predictions LA90	-	-	-	21.8	26	29.7	30.8	30.8	30.8	30.8	30.8	30.8
	Exceedance Level	-	-	-	-21.2	-17	-13.3	-12.2	-13.3	-15	-16.9	-19	-21
NAL15 - Garth Farmhouse*	TNL LA90	45	45	46.1	49	51.3	53	54.3	55.2	55.9	56.4	56.8	57.4
	Cumulative Predictions LA90	-	-	-	23.5	27.7	31.5	32.5	32.5	32.5	32.5	32.5	32.5
	Exceedance Level	-	-	-	-25.5	-23.6	-21.5	-21.8	-22.7	-23.4	-23.9	-24.3	-24.9

*Financially Involved with the Proposed Development

Note: For the cumulative noise predictions, the noise model considers the range of noise data available for each turbine type modelled. For some turbines noise data was not available for wind speeds less than 4 ms^{-1} therefore no cumulative predictions are included for wind speeds less than 4 ms^{-1}.

Operational phase – derivation of site specific noise limits for the Proposed Development (Stage 3)

10.6.17 To ensure the cumulative operation of all turbines would continue to meet the Total Noise Limits, each wind farm should operate within its own, site-specific limit. The Site Specific Noise Limits for the Proposed Development have been derived with due regard to the apportionment options of the Total Noise Limit that are provided in the IOA GPG, as summarised in Table 6.8 of **Technical Appendix 10.2: Operational Noise Report (EIAR Volume 4)**.

10.6.18 The Site Specific Noise Limits and noise predictions for the Proposed Development on its own, based on a candidate turbine of the Vestas V172 7.2 MW with a hub height of 114 m, are summarised in **Table 10.13** and **Table 10.14**.

10.6.19 The results show that the predicted wind turbine noise levels from the Proposed Development operating on its own meet the Site Specific Noise Limits under all conditions at all NALs during the daytime and night-time. As such, operational noise is **Not Significant**.

Table 10.13: Site Specific Noise Limit Compliance Table – Daytime													
Noise Assessment Location (NAL)		**Wind Speed (ms^{-1}) as standardised to 10 m height**											
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
NAL1 - The Brough	Site Specific Noise Limit LA90	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.1	42.3	44.6	46.8
	Predictions LA90	-	-	-	27.8	31.6	35.2	36.4	36.4	36.4	36.4	36.4	36.4
	Exceedance Level	-	-	-	-12.2	-8.4	-4.8	-3.6	-3.6	-3.7	-5.9	-8.2	-10.4
NAL2 - Norden	Site Specific Noise Limit LA90	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.1	42.3	44.6	46.8
	Predictions LA90	-	-	-	28.1	32.0	35.5	36.7	36.7	36.7	36.7	36.7	36.7
	Exceedance Level	-	-	-	-11.9	-8.0	-4.5	-3.3	-3.3	-3.4	-5.6	-7.9	-10.1
NAL3 - Whitehouse	Site Specific Noise Limit LA90	40.0	40.0	40.0	40.0	40.0	40.0	40.8	42.7	44.9	47.1	49.4	51.8
	Predictions LA90	-	-	-	29.5	33.4	36.9	38.1	38.1	38.1	38.1	38.1	38.1
	Exceedance Level	-	-	-	-10.5	-6.6	-3.1	-2.7	-4.6	-6.8	-9.0	-11.3	-13.7
NAL4 - Lighthouse Cottage	Site Specific Noise Limit LA90	40.0	40.0	40.0	40.0	40.0	40.0	40.8	42.7	44.9	47.1	49.4	51.8
	Predictions LA90	-	-	-	28.0	31.8	35.4	36.6	36.6	36.6	36.6	36.6	36.6
	Exceedance Level	-	-	-	-12.0	-8.2	-4.6	-4.2	-6.1	-8.3	-10.5	-12.8	-15.2
NAL5 - Fort	Site Specific Noise Limit LA90	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.1	42.4	44.8	47.2	49.6
	Predictions LA90	-	-	-	20.7	24.5	28.1	29.3	29.3	29.3	29.3	29.3	29.3
	Exceedance Level	-	-	-	-19.3	-15.5	-11.9	-10.7	-10.8	-13.1	-15.5	-17.9	-20.3

Table 10.13: Site Specific Noise Limit Compliance Table – Daytime												
Noise Assessment Location (NAL)		**Wind Speed (ms^{-1}) as standardised to 10 m height**										
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
NAL6 - Bankhead Straits	Site Specific Noise Limit LA90	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.1	42.4	44.8	47.2	49.6
	Predictions LA90	-	-	-	20.4	24.2	27.7	29.0	29.0	29.0	29.0	29.0	29.0
	Exceedance Level	-	-	-	-19.6	-15.8	-12.3	-11.0	-11.1	-13.4	-15.8	-18.2	-20.6
NAL7 - Hillgrind	Site Specific Noise Limit LA90	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.1	42.4	44.8	47.2	49.6
	Predictions LA90	-	-	-	19.2	23.1	26.6	27.8	27.8	27.8	27.8	27.8	27.8
	Exceedance Level	-	-	-	-20.8	-16.9	-13.4	-12.2	-12.3	-14.6	-17.0	-19.4	-21.8
NAL8 - 15 Maidenfield	Site Specific Noise Limit LA90	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.1	42.4	44.8	47.2	49.6
	Predictions LA90	-	-	-	22.0	25.9	29.4	30.6	30.6	30.6	30.6	30.6	30.6
	Exceedance Level	-	-	-	-18.0	-14.1	-10.6	-9.4	-9.5	-11.8	-14.2	-16.6	-19.0
NAL9 - Linga	Site Specific Noise Limit LA90	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.1	42.4	44.8	47.2	49.6
	Predictions LA90	-	-	-	20.7	24.6	28.1	29.3	29.3	29.3	29.3	29.3	29.3
	Exceedance Level	-	-	-	-19.3	-15.4	-11.9	-10.7	-10.8	-13.1	-15.5	-17.9	-20.3
NAL10 - 10 Leaside	Site Specific Noise Limit LA90	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.1	42.4	44.8	47.2	49.6
	Predictions LA90	-	-	-	17.2	21.0	24.5	25.8	25.8	25.8	25.8	25.8	25.8
	Exceedance Level	-	-	-	-22.8	-19.0	-15.5	-14.2	-14.3	-16.6	-19.0	-21.4	-23.8

Table 10.13: Site Specific Noise Limit Compliance Table – Daytime												
Noise Assessment Location (NAL)		**Wind Speed (ms^{-1}) as standardised to 10 m height**										
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
NAL11 – The Old School	Site Specific Noise Limit LA90	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.1	42.4	44.8	47.2	49.6
	Predictions LA90	-	-	-	17.6	21.4	25.0	26.2	26.2	26.2	26.2	26.2	26.2
	Exceedance Level	-	-	-	-22.4	-18.6	-15.0	-13.8	-13.9	-16.2	-18.6	-21.0	-23.4
NAL12 - Moorfield	Site Specific Noise Limit LA90	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.1	42.4	44.8	47.2	49.6
	Predictions LA90	-	-	-	17.7	21.5	25.1	26.3	26.3	26.3	26.3	26.3	26.3
	Exceedance Level	-	-	-	-22.3	-18.5	-14.9	-13.7	-13.8	-16.1	-18.5	-20.9	-23.3
NAL13 - Laxobiggin	Site Specific Noise Limit LA90	40.0	40.0	40.0	40.0	40.5	41.5	42.8	44.3	46.2	48.2	50.4	52.6
	Predictions LA90	-	-	-	19.4	23.2	26.8	28.0	28.0	28.0	28.0	28.0	28.0
	Exceedance Level	-	-	-	-20.6	-17.3	-14.7	-14.8	-16.3	-18.2	-20.2	-22.4	-24.6
NAL14 - Millburn	Site Specific Noise Limit LA90	40.0	40.0	40.0	40.0	40.5	41.5	42.8	44.3	46.2	48.2	50.4	52.6
	Predictions LA90	-	-	-	20.8	24.6	28.2	29.4	29.4	29.4	29.4	29.4	29.4
	Exceedance Level	-	-	-	-19.2	-15.9	-13.3	-13.4	-14.9	-16.8	-18.8	-21.0	-23.2
NAL15 - Garth Farmhouse	Site Specific Noise Limit LA90	50.1	50.2	50.5	51.0	51.6	52.3	53.1	54.1	55.1	56.2	57.4	58.7
	Predictions LA90	-	-	-	22.3	26.2	29.7	30.9	30.9	30.9	30.9	30.9	30.9
	Exceedance Level	-	-	-	-28.7	-25.4	-22.6	-22.2	-23.2	-24.2	-25.3	-26.5	-27.8

Table 10.14: Site Specific Noise Limit Compliance Table – Night-Time													
Noise Assessment Location (NAL)		**Wind Speed (ms^{-1}) as standardised to 10 m height**											
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
NAL1 - The Brough	Site Specific Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.8
	Predictions LA90	-	-	-	27.8	31.6	35.2	36.4	36.4	36.4	36.4	36.4	36.4
	Exceedance Level	-	-	-	-15.2	-11.4	-7.8	-6.6	-6.6	-6.6	-6.6	-6.6	-8.4
NAL2 - Norden	Site Specific Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.8
	Predictions LA90	-	-	-	28.1	32.0	35.5	36.7	36.7	36.7	36.7	36.7	36.7
	Exceedance Level	-	-	-	-14.9	-11.0	-7.5	-6.3	-6.3	-6.3	-6.3	-6.3	-8.1
NAL3 - Whitehouse	Site Specific Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.4	48.0	50.5
	Predictions LA90	-	-	-	29.5	33.4	36.9	38.1	38.1	38.1	38.1	38.1	38.1
	Exceedance Level	-	-	-	-13.5	-9.6	-6.1	-4.9	-4.9	-4.9	-7.3	-9.9	-12.4
NAL4 - Lighthouse Cottage	Site Specific Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.4	48.0	50.5
	Predictions LA90	-	-	-	28.0	31.8	35.4	36.6	36.6	36.6	36.6	36.6	36.6
	Exceedance Level	-	-	-	-15.0	-11.2	-7.6	-6.4	-6.4	-6.4	-8.8	-11.4	-13.9
NAL5 - Fort	Site Specific Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.2	45.4	47.7
	Predictions LA90	-	-	-	20.7	24.5	28.1	29.3	29.3	29.3	29.3	29.3	29.3

Table 10.14: Site Specific Noise Limit Compliance Table – Night-Time													
Noise Assessment Location (NAL)		**Wind Speed (ms^{-1}) as standardised to 10 m height**											
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Exceedance Level	-	-	-	-22.3	-18.5	-14.9	-13.7	-13.7	-13.7	-13.9	-16.1	-18.4
NAL6 - Bankhead Straits	Site Specific Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.2	45.4	47.7
	Predictions LA90	-	-	-	20.4	24.2	27.7	29.0	29.0	29.0	29.0	29.0	29.0
	Exceedance Level	-	-	-	-22.6	-18.8	-15.3	-14.0	-14.0	-14.0	-14.2	-16.4	-18.7
NAL7 - Hillgrind	Site Specific Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.2	45.4	47.7
	Predictions LA90	-	-	-	19.2	23.1	26.6	27.8	27.8	27.8	27.8	27.8	27.8
	Exceedance Level	-	-	-	-23.8	-19.9	-16.4	-15.2	-15.2	-15.2	-15.4	-17.6	-19.9
NAL8 - 15 Maidenfield	Site Specific Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.2	45.4	47.7
	Predictions LA90	-	-	-	22.0	25.9	29.4	30.6	30.6	30.6	30.6	30.6	30.6
	Exceedance Level	-	-	-	-21.0	-17.1	-13.6	-12.4	-12.4	-12.4	-12.6	-14.8	-17.1
NAL9 - Linga	Site Specific Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.2	45.4	47.7
	Predictions LA90	-	-	-	20.7	24.6	28.1	29.3	29.3	29.3	29.3	29.3	29.3
	Exceedance Level	-	-	-	-22.3	-18.4	-14.9	-13.7	-13.7	-13.7	-13.9	-16.1	-18.4
NAL10 - 10 Leaside	Site Specific Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.2	45.4	47.7
	Predictions LA90	-	-	-	17.2	21.0	24.5	25.8	25.8	25.8	25.8	25.8	25.8

Table 10.14: Site Specific Noise Limit Compliance Table – Night-Time													
Noise Assessment Location (NAL)		**Wind Speed (ms^{-1}) as standardised to 10 m height**											
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Exceedance Level	-	-	-	-25.8	-22.0	-18.5	-17.2	-17.2	-17.2	-17.4	-19.6	-21.9
NAL11 – The Old School	Site Specific Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.2	45.4	47.7
	Predictions LA90	-	-	-	17.6	21.4	25.0	26.2	26.2	26.2	26.2	26.2	26.2
	Exceedance Level	-	-	-	-25.4	-21.6	-18.0	-16.8	-16.8	-16.8	-17.0	-19.2	-21.5
NAL12 - Moorfield	Site Specific Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.2	45.4	47.7
	Predictions LA90	-	-	-	17.7	21.5	25.1	26.3	26.3	26.3	26.3	26.3	26.3
	Exceedance Level	-	-	-	-25.3	-21.5	-17.9	-16.7	-16.7	-16.7	-16.9	-19.1	-21.4
NAL13 - Laxobiggin	Site Specific Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.1	45.8	47.7	49.8	51.8
	Predictions LA90	-	-	-	19.4	23.2	26.8	28.0	28.0	28.0	28.0	28.0	28.0
	Exceedance Level	-	-	-	-23.6	-19.8	-16.2	-15.0	-16.1	-17.8	-19.7	-21.8	-23.8
NAL14 - Millburn	Site Specific Noise Limit LA90	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.1	45.8	47.7	49.8	51.8
	Predictions LA90	-	-	-	20.8	24.6	28.2	29.4	29.4	29.4	29.4	29.4	29.4
	Exceedance Level	-	-	-	-22.2	-18.4	-14.8	-13.6	-14.7	-16.4	-18.3	-20.4	-22.4
NAL15 - Garth Farmhouse	Site Specific Noise Limit LA90	45.0	45.0	46.1	49.0	51.3	53.0	54.3	55.2	55.9	56.4	56.8	57.4
	Predictions LA90	-	-	-	22.3	26.2	29.7	30.9	30.9	30.9	30.9	30.9	30.9
	Exceedance Level	-	-	-	-26.7	-25.1	-23.3	-23.4	-24.3	-25.0	-25.5	-25.9	-26.5

Potential Cumulative Construction Effects

10.6.20 It is noted that the construction of the Proposed Development could overlap with that of the proposed Sullom Voe Oil Terminal Wind Turbines. The Noise Impact Assessment (NIA) for the proposed Sullom Voe Oil Terminal Wind Turbines scopes out construction noise, however, due to the proximity of shared NSRs between the two projects, it would be appropriate to consider the potential for cumulative construction noise impacts.

10.6.21 Sound pressure levels add together logarithmically, and where two noise sources have noise levels that are more than 10 dB apart, no noise level increase will occur as a result of both sources operating together. For example: 40 dB + 30 dB = 40 dB.

10.6.22 Therefore, when considering the potential for cumulative noise effects, it is important to consider whether the noise levels from multiple developments are likely to be within or greater than 10 dB of each other at any given receptor.

10.6.23 Similarly, if the predicted noise level from a noise source is at least 10 dB below a noise level limit then the contribution of that noise source cannot not contribute to any exceedance of the noise limit.

10.6.24 The closest NSR that would be shared by both developments is at CNAL5, where the maximum predicted noise levels from the Proposed Development are 47 - 48 dBA, between months 2 and 12, which is more than 10 dB below the Category A Weekday Daytime threshold of 65 dBA. Accordingly, construction activities from the Proposed Development cannot contribute to an exceedance of this threshold, even if construction is occurring at the same time as the Sullom Voe Oil Terminal Wind Turbines.

10.6.25 The predicted construction noise levels, however are not 10 dB below the evening and weekend BS 5228 thresholds, therefore, there is the potential for this threshold to be exceeded at CNAL5. Analysis of the predicted noise levels indicates that the primary contributor to noise at this receptor would be from activities occurring within the borrow pit search area, therefore, if the Sullom Voe Oil Terminal Wind Turbines were being constructed at the same time as borrow pit operations were occurring, it may be necessary to restrict borrow pit related activities to weekday daytime hours only i.e. not allow working after 18:00 weekdays or after 13:00 on Saturdays.

10.6.26 To summarise, construction noise levels from the Proposed Development would be at least 10 dB below the Category A threshold levels during weekday daytimes and no exceedances of the BS 5228 threshold could occur from cumulative construction activities. In the event that the two developments are constructed at the same time, it may be necessary to restrict some construction activities in the area of the borrow pit during the evening and weekend. However, it is concluded that cumulative construction noise is **Not Significant**.

Potential Cumulative Operational Effects

10.6.27 The result of the likely cumulative operational wind farm noise assessment show that the Proposed Development can operate concurrently with the Sullom Voe Oil Terminal Wind Turbines, whilst meeting the TNLs. As such, cumulative operational noise is **Not Significant**.

10.7 Additional (Secondary) Mitigation

10.7.1 Additional (secondary) mitigation comprises site-specific mitigation which has been included to reduce the magnitude of impact/significance of effect identified through the EIA.

10.7.2 As there are no significant effects associated with both construction noise and operational noise from the Proposed Development, additional mitigation is not required, however, if the

construction of the Sullom Voe Oil Terminal Wind Turbines occurs at the same time as the construction of the Proposed Development, restriction of construction activity times related to borrow pit operations may be required, as detailed in **Table 10.15**.

Table 10.15: Summary of Additional Mitigation					
Reference	**Phase***	**Description of Mitigation**	**Purpose of Mitigation**	**Means of Implementation**	**Consultation or Approval Required**
NV02	C	Restriction of construction noise activities related to the borrow pit to 07:00 - 19:00 weekdays and 07:00 - 13:00 Saturdays in the event of cumulative construction noise with the Sullom Voe Oil Terminal Wind Turbines construction.	To ensure cumulative noise levels remain below BS 5228 threshold levels during evening and weekend periods.	To be determined dependent on local conditions. Guidance on this to be included within the Construction Environmental Management Plan (CEMP).	None

**C=construction, O=operation and maintenance.*

10.8 Assessment of Residual Effects

Residual Construction Effects

10.8.1 Elements of construction noise may be audible at the closest residential receptors for certain periods during the construction phases. However, with or without the good practice construction mitigation measures outlined above, there would be no significant residual effects.

10.8.2 Therefore, construction noise is **Not Significant**.

Residual Operational Effects

10.8.3 The results of the noise assessment show that the predicted turbine noise levels would meet the Site Specific Noise Limits under all conditions and at all locations for both daytime and night-time periods. As such, no additional mitigation is required and there would be no significant residual effects from operational noise.

10.8.4 At some locations, under some wind conditions and for a certain proportion of the time operational wind farm noise could be audible; however, it would be at an acceptable level in relation to the ETSU-R-97 guidelines.

10.8.5 Therefore, operational noise is **Not Significant**.

Residual Cumulative Construction Effects

10.8.6 The predicted construction noise levels at all CNALs are significantly below the daytime and night-time threshold levels (by at least 10 dB). Therefore, during the daytime and night-time any contribution from the construction of the Proposed Development would not increase the ambient noise levels at NSRs to above the BS 5228 threshold levels regardless of other construction activities that may be occurring from neighbouring developments.

10.8.7 The predicted construction noise levels are less than the evening and weekend BS 5228 threshold levels, though they are within 10 dB. Therefore, in the event that there are concurrent construction activities including the Proposed Development and the neighbouring proposed Sullom Voe Oil Terminal Wind Turbines, there is a possibility that the threshold levels are exceeded. In the unlikely event that this does occur, the duration of any exceedances would be short term in nature and can be mitigated, if required, through restricting activity hours related to borrow pit activities.

10.8.8 Accordingly, cumulative construction noise is **Not Significant**.

Residual Cumulative Operational Effects

10.8.9 No other existing, consented or proposed developments are located sufficiently close to the Proposed Development for their operational noise to combine in a manner that could result in significant cumulative effects.

10.8.10 Therefore, cumulative operational noise is **Not Significant**.

10.9 Monitoring

Construction Phase Monitoring

10.9.1 No monitoring required.

Operational Phase Monitoring

10.9.2 No monitoring required.

10.10 Summary of Potential Significant Effects

10.10.1 **Table 10.16** summarises the EIA assessment outcome.

10.10.2 Predicted construction noise levels compared with the Category criteria outlined in Section E.3 of BS 5228: Part 1 2009+A1:2014 indicate that construction noise levels are below the guideline levels considered acceptable at all residential receptors across the construction timeline and therefore the construction noise effects are **Not Significant**.

10.10.3 The guidance contained within ETSU-R-97 was used to assess the likely operational noise impact of the Proposed Development. Predicted levels and measured background noise levels indicate that for dwellings neighbouring the Proposed Development, wind turbine noise would meet the noise criteria established in accordance with ETSU-R-97, therefore the operational noise effects are **Not Significant**.

10.10.4 There are a range of wind turbine models that would be appropriate for the Proposed Development. The candidate wind turbine used for this assessment was chosen in order to allow a representative assessment of the noise impacts. Should the Proposed Development receive consent, the final choice of wind turbine would be subject to a competitive tendering process. The final choice of wind turbine would, however, have to meet the noise limits determined and contained within any condition imposed.

Table 10.16: Summary of Potential Significant Effects

Impact	Likely Significance of Effect	Mitigation Proposed	Residual Effect	Monitoring
Construction				
Impacts at residential receptors from noise generated by construction activities associated with the Proposed Development.	Not Significant	None	Not Significant	Not required
Operation				
Impacts at residential receptors from noise generated from the operation of Proposed Development (Wind Turbines).	Not Significant	None	Not Significant	Not required
Cumulative Construction				

Table 10.16: Summary of Potential Significant Effects				
Impact	**Likely Significance of Effect**	**Mitigation Proposed**	**Residual Effect**	**Monitoring**
Potential cumulative construction noise effects on noise sensitive receptors.	Not Significant	Restriction of construction noise activities related to the borrow pit to 07:00 - 19:00 weekdays and 07:00 - 13:00 Saturdays in the event of cumulative construction noise with the Sullom Voe Oil Terminal Wind Turbines construction.	Not Significant	Not required

11 Aviation and Radar

11.1 Executive Summary

11.1.1 This chapter considers the likely significant effects on aviation and radar associated with the construction and operation of the Proposed Development. It finds that the Proposed Development has the potential to affect:

- the Ministry of Defence (MoD) Saxa Vord air defence radar;
- the Brough Hill Vessel Traffic Service (VTS) radar; and
- low flying military aircraft.

11.1.2 The Applicant proposes to mitigate the effects of the Proposed Development on the Saxa Vord air defence radar by the application of a Non-Auto Initiation Zone (NAIZ) over the wind farm. This mitigation has been accepted by the MoD at numerous other onshore wind farm sites across the UK and is in operational use. The residual effect of the Proposed Development on the Saxa Vord radar would not be significant.

11.1.3 The Applicant proposes to mitigate the effects of the Proposed Development on the Brough Hill VTS radar by the reconfiguration of the Sullom Voe radar network to be applied by the radar operator to accommodate the Veri Energy wind energy development. The residual effect of the Proposed Development on the Brough Hill radar would not be significant.

11.1.4 The MoD has advised that the effects of the Proposed Development on low flying military aircraft would be acceptably mitigated by the imposition of planning conditions requiring pre-construction notification of the details of the Proposed Development and the provision of aviation lighting. These measures are mandated by law and would, if required, be additionally secured through planning conditions. The residual effects of the Proposed Development on military low flying would not be significant.

11.2 Introduction

11.2.1 This chapter considers the likely significant effects on aviation and radar associated with the construction and operation of Neshion Energy Park ('the Proposed Development').

11.2.2 The Proposed Development is a renewable energy development comprised of up to eight wind turbines, a Battery Energy Storage System (BESS) and associated infrastructure adjacent to Sullom Voe Oil Terminal (SVT) and the Shetland Gas Plant in Shetland, Scotland. The assessment is based on the Proposed Development as described in **Chapter 2: Proposed Development (EIAR Volume 2)**.

11.2.3 The specific objectives of the chapter are to:

- describe the existing aviation and radar baseline context and cumulative context;
- describe the assessment methodology and significance criteria used in completing the impact assessment;
- describe the potential effects, including direct, indirect and cumulative effects;
- describe the mitigation measures proposed to address likely significant effects; and
- assess the residual effects remaining following the implementation of mitigation.

11.2.4 The assessment has been carried out by Malcolm Spaven of Gladhouse Planning Ltd (trading as Aviatica). Malcolm Spaven holds an MA (Hons) and MSc and has 30 years of experience of assessing the impacts of wind energy developments on aviation. This has included the

preparation of more than one hundred Environmental Impact Assessment (EIA) chapters for projects across the UK.

11.3 Assessment Methodology

Overview

11.3.1 The aviation methodology is detailed in the below sections and follows the principles set out in Civil Aviation Authority (CAA) guidance, CAA Policy and Guidance on Wind Turbines (CAP 764)[1].

Scope of Assessment

Potential Impacts Scoped In

11.3.2 The scope of this chapter is set out in **Table 11.1.** The scope of the assessment has been informed by consultation responses detailed in **Technical Appendix 1.1: Consultation Register (EIAR Volume 4)**.

Table 11.1: Impacts Considered within the Assessment

Impact	Phase*	
	C	O
In False plots on the Saxa Vord air defence radar	N/A	X
False plots on the Sullom Voe VTS radar	X	X
Obstacle hazard effects on low flying military aircraft	X	X

*C=construction, O=operation and maintenance, X = denotes potential impact considered in assessment.

11.3.3 In addition, this chapter considers the requirements for provision of aviation lighting on the turbines. This is not driven by any specified adverse effects on aviation, it is a legal requirement in UK civil air law, derived from international standards and recommended practices promulgated by the International Civil Aviation Organisation (ICAO). Lighting requirements are therefore addressed only in **Section 11.5 (Mitigation)**. Effects as a result of lighting on visual amenity have been considered as part of **Chapter 4: Seascape, Landscape and Visual Amenity (EIAR Volume 2)**.

11.3.4 This chapter assesses cumulative effects as arising from the addition of the Proposed Development to other cumulative developments, which are the subject of a valid planning application. Operational, under construction and consented developments are considered as part of the baseline. Developments close to the end of their operational life would be included as part of the baseline to present a 'worst case scenario'.

11.3.5 The assessment is based on the Proposed Development as described in **Chapter 2: Development Description (EIAR Volume 2)**.

[1] Civil Aviation Authority (2016). *Safety & Airspace Regulation Group CAA Policy and Guidelines on Wind Turbines CAP 764*. [online] Available at: https://www.caa.co.uk/publication/download/14561. (Accessed 18 February 2026).

Potential Impacts Scoped Out

11.3.6 The assessment focusses on likely significant effects and as such impacts that are not likely to result in significant effects have been scoped out of the assessment. A summary of the impacts scoped out, together with reasoning for scoping them out is presented in **Table 11.2**.

Table 11.2: Impacts Scoped Out of the Assessment

Impact	Reasoning
Effects on NATS En Route plc (NERL) en route primary surveillance radars (PSRs)	NERL scoping response advised that it had no safeguarding objection to the Proposed Development.
Effects on civil airport PSRs	Highlands and Islands Airport Limited (HIAL) scoping response advise that the Proposed Development is outwith HIAL's safeguarding criteria, and they had no objections to the proposal.
Effects on military aerodrome PSRs	None within study area, and MoD scoping response did not refer to potential effects on these receptors.
Effects on the Sullom Voe Harbour Authority Vats Houllands and Sella Ness VTS radars	Sullom Voe Harbour Authority has advised that these radars would not be affected.
Effects on aerodrome instrument flight procedures (IFPs)	None within study area and MoD, and HIAL scoping responses did not refer to potential effects on these receptors.
Effects on Meteorological Office rainfall radars	None within study area.
Effects on licensed, certificated or unlicensed aerodromes	None within study area.
Effects on aeronautical radio navigation or communications equipment	None within study area.

Method of Baseline Characterisation

Extent of the Study Area

11.3.7 The study areas for the aviation and radar assessment were selected using the recommended distances set out in CAA guidance (CAP 764)[1], modified to ensure that all radars with the range to detect wind turbines are included. The distances used are radii from the closest turbine position, as follows:

- 110km for air defence and air traffic control PSRs;
- 20km for secondary surveillance radars (SSRs), aeronautical radio navigation and communication facilities;
- 60km for aerodromes with IFPs;
- 20km for all other licensed or certificated aerodromes;
- 10km for unlicensed aerodromes and landing sites;
- 25km for Meteorological Office radars; and
- 10km for marine radars.

Desk Study

11.3.8 The aviation and radar baseline assessment was carried out by consulting the UK Aeronautical Information Publication (AIP), the UK Military AIP, civil and military aeronautical charts, published Ministry of Defence (MoD) and NERL radar coverage charts and Aviatica in-house databases of aviation infrastructure and assets. The determination of the aviation baseline has also been informed by consultation responses from aviation and radar stakeholders (refer

to **Technical Appendix 1.1: Consultation Register (EIAR Volume 4)**). The baseline assessment of marine port control radar facilities was conducted through consultation with the Sullom Voe Harbour Authority.

Method of Assessment

Overview

11.3.9 The aviation assessment has followed the CAA guidance in CAP 764[1]. Radar line of sight has been modelled using Global Mapper software supplemented with digital terrain data at an appropriate resolution. Effects on military low flying have been assessed by reviewing the Proposed Development against airspace boundaries, existing terrain and obstacle constraints. Effects on marine radar have been assessed through consultations with the Sullom Voe Harbour Authority.

11.3.10 Significance criteria for assessment of impacts on aviation and radar, unlike those for environmental effects, are not based on the sensitivity of the receptor. Further, while magnitude of impact can be determined in some circumstances, it typically does not provide a standardised metric on which to measure the significance of any effects. In this context, the significance of effects on aviation and radar have been determined in this chapter by application of professional judgement, underpinned by consideration of the magnitude of impact (where measurable); the regulations and procedures in place for ensuring that aviation and radar infrastructure meets required performance standards; the safeguarding policies and practices in use by specific aviation and radar stakeholders; and the consultation responses from those stakeholders.

Limitations and Assumptions

11.3.11 No limitations were encountered in conducting the aviation and radar assessment.

11.4 Baseline Conditions

Current Baseline

11.4.1 The Site is located in uncontrolled (Class G) airspace extending from ground level to Flight Level 195 (approximately 19,500 feet (ft) above mean sea level (amsl)).

11.4.2 A Lockheed Martin TPS-77 air defence PSR is located at Remote Radio Head (RRH) Saxa Vord, 44 km north east of the Proposed Development.

11.4.3 The Site is located within daytime military Low Flying Area (LFA) 14, which covers the whole of Scotland north of the Rivers Forth and Clyde. Fixed wing military aircraft may fly as low as 250 ft above ground level (agl) in this area. Shetland is not within the military night low flying system.

11.4.4 There are no other aviation facilities within the Study Area.

11.4.5 The Sullom Voe Harbour Authority operates VTS radars at Brough Hill, 1 km east of the Proposed Development; Vats Houllands, 2 km west of the Proposed Development; and Sella Ness, 3 km south west of the Proposed Development.

Future Baseline

11.4.6 There are no known potential future changes to the aviation and radar baseline.

Summary of Sensitive Receptors

11.4.7 A summary of the receptors considered likely to be affected by the Proposed Development, and therefore scoped into the EIA Report are set out in **Table 11.3**.

Table 11.3: Summary of Sensitive Receptors

Receptor	Justification
RRH Saxa Vord PSR	Referred to in MoD scoping response.
Brough Hill VTS radar	As advised by Sullom Voe Harbour Authority.
Low flying military aircraft	Referred to in MoD scoping response.

11.5 Mitigation

11.5.1 Embedded (primary) mitigation is an inherent part of the project design and comprises measures that have influenced the location and design of the Proposed Development. Embedded mitigation would be secured through the description of the Proposed Development as part of planning consent and is described in the design evolution narrative (refer to **Chapter 3: Design Evolution (EIAR Volume 2)**). Standard (tertiary) mitigation comprises measures that are mandated by legislative requirements or standard best practices and would be required regardless of the outcomes of any EIA.

11.5.2 As the embedded and standard mitigation would form part of the Proposed Development, there would be no consented scenario where the mitigation measures would not be implemented. As such, the assessment of likely significant effects assumes that these mitigation measures are implemented.

11.5.3 A summary of the standard mitigation considered for the aviation assessment is set out in **Table 11.4**.

Table 11.4: Summary of Standard Mitigation

Reference	Phase*	Description	Purpose of Mitigation
AV01	C/O	Pre-construction provision of information on the development to the CAA and MoD in accordance with Article 225A of the Air Navigation Order (ANO)	To provide information on the Proposed Development to aircrew.
AV02	C/O	Provision of aviation lighting on the Proposed Development in accordance with Article 222 of the ANO	To provide warning of obstacles to aircrew flying at low level at night.

*C=construction, O=operation and maintenance

11.6 Assessment of Likely Effects

Potential Construction Effects

Low flying military aircraft

11.6.1 Since the MoD has stated in its scoping response (see **Technical Appendix 1.1: Consultation Register (EIAR Volume 4)**) that effects on low flying military aircraft would be addressed by conditions on any consent requiring aviation lighting and pre-construction notification of the details of the Proposed Development (mitigation reference: AV01 and

AV02), it is concluded that these effects are **Not Significant**. Therefore, construction effects on low flying military aircraft will not be considered further within the EIA Report.

Brough Hill VTS PSR

11.6.2 During the construction phase the turbine towers of the Proposed Development have the potential to cause multi-path effects, leading to inaccuracies in the displayed radar position of vessels in Yell Sound operating to/from the Sullom Voe Terminal. The Sullom Voe Harbour Authority has advised that Turbines 3, 4 and 5 of the Proposed Development would affect the performance of the Brough Hill radar.

Potential Operational Effects

Low flying military aircraft

11.6.3 The MoD has stated in its scoping response (see **Technical Appendix 1.1: Consultation Register (EIAR Volume 4)**) that effects on low flying military aircraft would be addressed by conditions on any consent requiring aviation lighting and pre-construction notification of the details of the Proposed Development (mitigation reference: AV01 and AV02). It is concluded that these effects are **Not Significant**. Therefore, operational effects on low flying military aircraft will not be considered further within the EIA Report.

Saxa Vord PSR

11.6.4 Rotating wind turbine blades have the potential to appear on PSR displays as false plots, resembling aircraft. They may also reduce the radar's probability of detecting real aircraft targets in the airspace over the Proposed Development.

Brough Hill VTS PSR

11.6.5 The effects of the Proposed Development on the Brough Hill VTS radar during the operational phase would be the same as during the construction phase.

Potential Cumulative Construction Effects

Low flying military aircraft

11.6.6 There is no potential for cumulative construction effects on military low flying due to the standard mitigation measures AV01 and AV02.

Brough Hill VTS PSR

11.6.7 There is potential for cumulative construction effects on the Brough Hill PSR with the Veri Energy development of two wind turbines, 2.5 km west of the Proposed Development (Shetland Islands Council planning reference 2025/317/PPF). The Veri Energy development would primarily affect the operation of the Vats Houllands radar, which is the main radar monitoring shipping lanes in Yell Sound, with the Brough Hill radar used as a backup in the event of failure or maintenance of the Vats Houllands radar. However the effects of the Veri Energy development on the Vats Houllands radar could lead to a reconfiguration of the Sullom Voe VTS radars which may have implications for the effects of the Proposed Development on the Brough Hill radar.

Potential Cumulative Operational Effects

Saxa Vord PSR

11.6.8 The following developments have the potential for cumulative effects with the Proposed Development on the Saxa Vord PSR:

- Beaw Field (17 x 145 m turbines, 10 km north east of the Proposed Development);
- Viking Variation (103 x 155 m turbines, 14 km south of the Proposed Development);
- Energy Isles (18 x 180 m turbines, 24 km north east of the Proposed Development); and
- Veri Energy (2 x 149.9m turbines, 2.5 km south west of the Proposed Development).

11.6.9 Some or all of the Beaw Field, Viking Variation, Energy Isles and Veri Energy turbines are within line of sight of the Saxa Vord PSR and therefore have the potential to generate adverse effects on the radar. The MoD responded to the applications for the Beaw Field and Viking Variation developments with a position of no objection. However, the MoD objected to the Energy Isles development on grounds of unacceptable effects on the Saxa Vord radar. The effects of the Energy Isles development will be mitigated by implementation of a NAIZ in the radar's coverage of the airspace around the wind farm. The Proposed Development would introduce eight additional turbines to the 140 consented, operational and proposed turbines in the area – an increase of 5.7%. The MoD has advised that it has concerns with the Proposed Development on grounds of unacceptable interference with the Saxa Vord radar. It is concluded that the Proposed Development has the potential to create **Significant** cumulative operational effects on the Saxa Vord radar.

11.7 Additional (Secondary) Mitigation

11.7.1 Additional (secondary) mitigation comprises site-specific mitigation which has been included to reduce the magnitude of impact/significance of effect identified through the EIA.

11.7.2 A summary of the additional mitigation is set out in **Table 11.5**.

Saxa Vord PSR

11.7.3 The effects of wind turbines on the Lockheed Martin TPS-77 air defence radar have been successfully mitigated at numerous other onshore wind projects across the UK by the application of a NAIZ to the airspace above the wind farm. This involves a modification to the radar data processing software in a designated three-dimensional zone encompassing the wind farm. Within the designated volume of airspace, objects that generate a return on the radar for the first time within that airspace – such as wind turbines – are filtered out and do not appear on the radar display, while aircraft that were first detected outside the designated zone will continue to be tracked and displayed while crossing through the zone.

11.7.4 The Applicant has commissioned a study of the feasibility of NAIZ mitigation from Serco, who are responsible for maintenance of the MoD air defence radar fleet. The mitigation feasibility report from Serco confirms that a NAIZ mitigation is feasible. The Serco mitigation feasibility report has been submitted to the MoD and their response was awaited at the time of writing of this chapter. Since this form of mitigation has been accepted by the MoD for multiple onshore wind farms across the UK, including Shetland, it is expected that the proposal will be accepted by the MoD. On acceptance of the mitigation proposal, the MoD will issue a letter withdrawing their concerns, subject to a planning condition requiring implementation of the agreed mitigation prior to the operation of the Proposed Development.

Brough Hill VTS PSR

11.7.5 The Sullom Voe Harbour Authority has advised that reconfiguration of their VTS radar network to accommodate the Veri Energy development would also be likely to mitigate the effects of the Proposed Development. It is expected that this successful completion of this reconfiguration would be a condition on the consent for the Proposed Development.

Table 11.5: Summary of Additional Mitigation					
Reference	**Phase***	**Description of Mitigation**	**Purpose of Mitigation**	**Means of Implementation**	**Consultation or Approval Required**
AV03	O	Implementation of NAIZ on Saxa Vord PSR	Eliminate false plots on radar	Planning condition requiring approval and implementation of Radar Mitigation Scheme	MoD approval required
AV04	C/O	Radar network reconfiguration to accommodate Veri Energy development	Eliminate false plots on radar	Planning condition requiring successful completion of radar network reconfiguration	Approval by Sullom Voe Harbour Authority required

**C=construction, O=operation and maintenance.*

11.8 Assessment of Residual Effects

Residual Construction Effects

Brough Hill VTS PSR

11.8.1 Following the implementation of additional mitigation (mitigation reference: AV04), the residual effects of the Proposed Development on the Brough Hill PSR would be **Not Significant** since the proposed mitigation has been proposed by the radar operator as an acceptable solution.

Residual Operational Effects

Saxa Vord PSR

11.8.2 Following the implementation of additional mitigation (mitigation reference: AV03), the residual effects of the Proposed Development on the Saxa Vord PSR would be **Not Significant** since the proposed mitigation has been accepted by the MoD as appropriate mitigation at numerous other onshore wind farm sites within line of sight of air defence radars across the UK and has been implemented and is in service.

Brough Hill VTS PSR

11.8.3 The residual effects of the Proposed Development on the Brough Hill PSR during the operational phase would be the same as those during the construction phase.

Residual Cumulative Construction Effects

Brough Hill VTS PSR

11.8.4 Following the implementation of additional mitigation (mitigation reference: AV04), the residual cumulative effects of the Proposed Development on the Brough Hill PSR during the construction phase would be **Not Significant** since the proposed mitigation has been proposed by the radar operator as an acceptable solution to the effects of the Proposed Development with another wind energy development in the vicinity.

Residual Cumulative Operational Effects

Saxa Vord PSR

11.8.5 Following the implementation of additional mitigation (mitigation reference: AV03), the residual cumulative operational effects of the Proposed Development on the Saxa Vord PSR would be **Not Significant** since the proposed mitigation has been applied to multiple other wind farm projects within line of sight of air defence radars at numerous sites across the UK.

Brough Hill VTS PSR

11.8.6 The residual cumulative operational effects of the Proposed Development on the Brough Hill PSR would be the same as those during the construction phase.

11.9 Monitoring

11.9.1 No monitoring is required.

11.10 Summary of Potential Significant Effects

11.10.1 The potential for significant effects of the Proposed Development on aviation and radar are summarised in **Table 11.6**.

Table 11.6: Summary of Potential Significant Effects

Impact	Likely Significance of Effect	Mitigation Proposed	Residual Effect	Monitoring
Construction				
Effects on low flying military aircraft	Not significant	AV01 AV02	Not Significant	Not required
Effects on Brough Hill VTS PSR	Significant	AV04	Not Significant	Not required
Operation				
Effects on Saxa Vord PSR	Significant	AV03	Not Significant	Not required
Effects on Brough Hill VTS PSR	Significant	AV04	Not Significant	Not required
Cumulative Construction				
Effects on Brough Hill VTS PSR	Significant	AV04	Not Significant	Not required
Cumulative Operation				
Effects on Saxa Vord PSR	Significant	AV03	Not Significant	Not required
Effects on Brough Hill VTS PSR	Significant	AV04	Not significant	Not required

12 Telecommunications

12.1 Executive Summary

12.1.1 This chapter considers the likely significant effects on telecommunications associated with the construction and operation of the Proposed Development. The assessment finds that there are three microwave and one scanning telemetry links with the potential to be affected by the Proposed Development.

12.1.2 The turbine layout of the Proposed Development has been designed to ensure that all blade tips would remain at least 100 m clear of all fixed microwave links in the vicinity. The effects of the Proposed Development on fixed microwave telecommunications links are therefore assessed as not significant.

12.1.3 Following further engineering analysis by the Joint Radio Company (JRC), funded by the Applicant, a mitigation solution for the effects of the Proposed Development on the scanning telemetry link from the Shetland Gas Plant Substation to the Firth Substation has been identified and approved by the link operator, Scottish & Southern Energy (SSE).

12.1.4 Following implementation of agreed mitigation, the Proposed Development would have no significant effects on telecommunications.

12.2 Introduction

12.2.1 This chapter considers the likely significant effects on telecommunications associated with the construction and operation of Neshion Energy Park ('the Proposed Development').

12.2.2 The Proposed Development is a renewable energy development comprised of up to eight wind turbines, a Battery Energy Storage System (BESS) and associated infrastructure adjacent to Sullom Voe Oil Terminal (SVT) and the Shetland Gas Plant in Shetland, Scotland. The assessment is based on the Proposed Development as described in **Chapter 2: Proposed Development (EIAR Volume 2)**.

12.2.3 The specific objectives of the chapter are to:

- describe the existing telecommunications baseline context and cumulative context;
- describe the assessment methodology and significance criteria used in completing the impact assessment;
- describe the potential effects, including direct, indirect and cumulative effects;
- describe the mitigation measures proposed to address likely significant effects; and
- assess the residual effects remaining following the implementation of mitigation.

12.2.4 The assessment has been carried out by Malcolm Spaven of Gladhouse Planning Ltd (trading as Aviatica). Malcolm Spaven holds an MA (Hons) and MSc and has more than 25 years of experience of assessing the impacts of wind energy developments on telecommunications. This has included the preparation of more than one hundred Environmental Impact Assessment (EIA) chapters for projects across the UK.

12.3 Assessment Methodology

Overview

12.3.1 The telecommunications methodology is detailed in the below sections.

Scope of Assessment

Potential Impacts Scoped In

12.3.2 The scope of this chapter is set out in **Table 12.1**. The scope of the assessment has been informed by consultation responses detailed in **Technical Appendix 1.1: Consultation Register (EIAR Volume 4)**.

Table 12.1: Impacts Considered within the Assessment

Impact	Phase*	
	C	O
Reflection and scattering effects on fixed microwave radio communications links	X	X
Reflection and scattering effects on fixed Ultra-High Frequency (UHF) scanning telemetry links	X	X
Reflection and scattering effects on fixed UHF television re-broadcast links	X	X

*C=construction, O=operation and maintenance, X = denotes potential impact considered in assessment.

12.3.3 The chapter assesses cumulative effects as arising from the addition of the Proposed Development to other cumulative developments, which are the subject of a valid planning application. Operational, under construction and consented developments are considered as part of the baseline. Developments close to the end of their operational life will be included as part of the baseline to present a 'worst case scenario'.

12.3.4 The assessment is based on the Proposed Development as described in **Chapter 2: Development Description (EIAR Volume 2)**.

Potential Impacts Scoped Out

12.3.5 The assessment focuses on likely significant effects and as such impacts that are not likely to result in significant effects have been scoped out of the assessment. A summary of the impacts scoped out, together with reasoning for scoping them out is presented in **Table 12.2**.

Table 12.2: Impacts Scoped Out of the Assessment

Impact	Reasoning
Scanning telemetry links managed by Atkins Realis on behalf of the water industry	Atkins Realis has advised that it has no objection to the Proposed Development
UHF television re-broadcast links (RBLs) operated by Arqiva	The closest RBL is 4.7 km from the nearest turbine in the Proposed Development, well in excess of the Arqiva requirement for separation of at least 100m from any turbine blade tips.
JRC link from Hill of Swinister to Collafirth Hill	JRC has confirmed that the link would not be affected by the Proposed Development.
MBNL link from Hill of Swinister to Collafirth Hill	Link passes approximately 710 m from the nearest turbine in the Proposed Development (T1) - well in excess of MBNL's standard requirement for a minimum of 100 m separation between blade tips and their links.
Shetland Islands Council (SIC) link from Vats Houllands to Brough Hill	The Proposed Development has been designed to ensure that all turbine blade tips would remain at least 100 m clear of the SIC Vats Houllands to Brough Hill link. SIC has confirmed that the separation is sufficient to avoid interference.

Method of Baseline Characterisation

Extent of the Study Area

12.3.6 Potential effects on fixed telecommunications links have been considered for all such links passing within 1 km of the Site boundary.

Desk Study

12.3.7 The fixed microwave telecommunications link baseline was determined through interrogation of the Ofcom Spectrum Information Portal.[1]

12.3.8 The fixed scanning telemetry and television re-broadcast link baseline was determined through consultations with JRC and Atkins Realis and review of television transmitter maps (refer to **Technical Appendix 1.1: Consultation Register (EIAR Volume 4)**).

Method of Assessment

Overview

12.3.9 Significance criteria for assessment of impacts on telecommunications, unlike those for environmental effects, are not based on the sensitivity of the receptor. Further, while magnitude of impact can be determined in some circumstances, it typically does not provide a standardised metric on which to measure the significance of any effects. In this context, the significance of effects on aviation and radar have been determined in this chapter by application of professional judgement, underpinned by consideration of the magnitude of impact (where measurable); the regulations and procedures in place for ensuring that telecommunications infrastructure meets required performance standards; the safeguarding policies and practices in use by specific telecommunications stakeholders; and the consultation responses from those stakeholders.

Limitations and Assumptions

12.3.10 No limitations were encountered in conducting the telecommunications assessment.

12.4 Baseline Conditions

Current Baseline

12.4.1 Review of the Ofcom Spectrum Information Portal and consultations with telecommunications operators identified the following facilities with the potential to be affected by the Proposed Development:

- a JRC-managed microwave link from Hill of Swinister to Collafirth Hill;
- a Mobile Broadband Network Ltd (MBNL) microwave link from Hill of Swinister to Collafirth Hill;
- a Shetland Islands Council (SIC) microwave link from Vats Houllands to Brough Hill; and
- a JRC scanning telemetry link from Shetland Gas Plant Substation to Firth Substation.

Future Baseline

12.4.2 There are no known proposed changes to the telecommunications baseline.

[1] Ofcom (2025) *Spectrum information portal*. [online] Available at: https://www.ofcom.org.uk/spectrum/frequencies/spectrum-information-portal (Accessed 18 February 2026)

Summary of Sensitive Receptors

12.4.3 A summary of the receptors considered likely to be affected by the Proposed Development, and therefore scoped into the EIA Report are set out in **Table 12.3**.

Table 12.3: Summary of Sensitive Receptors

Receptor	Justification
JRC scanning telemetry link from Shetland Gas Plant Substation to Firth Substation	Identified through consultation with JRC

12.5 Mitigation

12.5.1 Embedded (primary) mitigation is an inherent part of the project design and comprises measures that have influenced the location and design of the Proposed Development. Embedded mitigation would be secured through the description of the Proposed Development as part of planning consent and is described in the design evolution narrative (refer to **Chapter 3: Design Evolution (EIAR Volume 2)**). Standard (tertiary) mitigation comprises measures that are mandated by legislative requirements or standard best practices and would be required regardless of the outcomes of any EIA.

12.5.2 As the embedded and standard mitigation would form part of the Proposed Development, there would be no consented scenario where the mitigation measures would not be implemented. As such, the assessment of likely significant effects assumes that these mitigation measures are implemented.

12.5.3 The embedded mitigation measure of relevance to telecommunications is the design of the layout which has ensured that the maximum horizontal extent of turbine blade tips remains at least 100 m from the path of any fixed telecommunications links.

12.5.4 No standard mitigation is proposed for the effects on telecommunications.

12.6 Assessment of Likely Effects

12.6.1 Because multi-path effects on fixed telecommunications links may be caused by the turbine towers before the wind farm becomes operational, potential effects on these links may occur in both the construction and operational phases of the Proposed Development. As such, the below likely effects are applicable to both the construction and operational phases of the Proposed Development.

JRC scanning telemetry link from Shetland Gas Plant Substation to Firth Substation

12.6.2 JRC has advised that the scanning telemetry link from Shetland Gas Plant Substation to Firth Substation would be unacceptably impacted by Turbines 1 and 8. Therefore, the effects on this link are assessed as being significant.

Potential Cumulative Effects

12.6.3 There are no other developments in the vicinity of the Proposed Development that could give rise to cumulative effects.

12.7 Additional (Secondary) Mitigation

12.7.1 Additional (secondary) mitigation comprises site-specific mitigation which has been included to reduce the magnitude of impact/significance of effect identified through the EIA.

12.7.2 JRC was commissioned by the Applicant to undertake further engineering analysis of the impacts of the Proposed Development on the JRC scanning telemetry link from Shetland Gas Plant Substation to Firth Substation and the potential mitigation options. This analysis concluded that mitigation was feasible by means of (a) installing a bayed antenna configuration at each endpoint of the link, consisting of two 12-element Yagi antennae, and (b) reducing the micro-siting allowance for Turbines 1 and 8 from the requested 100 m to 15 m.

12.7.3 The operator of the link, SSE, has accepted the mitigation proposed by JRC. The Applicant will enter into a commercial agreement to implement the agreed mitigation prior to the construction of the Proposed Development.

12.7.4 A summary of the proposed additional mitigation is set out in **Table 12.4**.

Table 12.4: Summary of Additional Mitigation

Reference	Phase*	Description of Mitigation	Purpose of Mitigation	Means of Implementation	Consultation or Approval Required
TC01	C/O	Installation of bayed antenna configuration at each end of the link	Mitigate reflection/scattering effects on JRC scanning telemetry link	Commercial agreement with SSE; planning condition	Commercial agreement with SSE; approval of planning condition wording
TC02	C/O	Reduction of T1 and T8 micrositing allowance from 100 m to 15 m	Mitigate reflection/scattering effects on JRC scanning telemetry link	Commercial agreement with SSE; planning condition	Commercial agreement with SSE; approval of planning condition wording

**C=construction, O=operation and maintenance.*

12.8 Assessment of Residual Effects

JRC scanning telemetry link from Shetland Gas Plant Substation to Firth Substation

12.8.1 Following the implementation of additional mitigation (mitigation reference: TC01 and TC02), the residual effects of the Proposed Development on the JRC scanning telemetry link from Shetland Gas Plant Substation to Firth Substation are assessed as **Not Significant**.

12.9 Monitoring

12.9.1 No monitoring would be required.

12.10 Summary of Potential Significant Effects

12.10.1 The potential significant effects of the Proposed Development on telecommunications are summarised in **Table 12.5**.

Table 12.5: Summary of Potential Significant Effects

Impact	Likely Significance of Effect	Mitigation Proposed	Residual Effect	Monitoring
Construction and Operation				
Reflection and scattering effects on JRC scanning	Significant	TC01 TC02	Not significant	Not required

Table 12.5: Summary of Potential Significant Effects				
Impact	**Likely Significance of Effect**	**Mitigation Proposed**	**Residual Effect**	**Monitoring**
telemetry link between Shetland Gas Plant Substation and Firth Substation				

13 Shadow Flicker

13.1 Executive Summary

13.1.1 This chapter provides an assessment of the potential impacts on residential amenity resulting from shadow flicker from the Proposed Development. The shadow flicker assessment has been undertaken to consider the maximum tip height of 200 m and a representative rotor diameter of 172 m for the Proposed Development. A study area of 10 rotor diameters (1.72 km) around each turbine was considered and 11 receptors potentially susceptible to shadow flicker were identified within the study area.

13.1.2 There are no published guidelines in Scotland that define acceptable levels of shadow flicker. In the absence of specific guidelines, the assessment has considered the Parsons Brinckerhoff (2011)[1] paper which considers guidelines from different countries relating to Shadow Flicker. This assessment has used the following criteria that are based on Northern Irish and German guidance as listed in the above paper: shadow flicker should not be allowed to exceed 30 hours per year or 30 minutes per day. As such, properties where shadow flicker would potentially exceed these thresholds would be subject to significant effects, in the absence of mitigation.

13.1.3 The assessment indicates that the potential number of shadow flicker hours experienced exceeds 30 hours per year or 30 minutes per day at five of the properties identified within the study area. In the absence of mitigation, shadow flicker effects are potentially significant for these receptors.

13.1.4 This analysis provides an extremely conservative estimate of the extent that the properties would be affected by shadow flicker. Due to frequent cloud cover, low irradiance intensity, turbines not turning at all times, the presence of intervening vegetation and turbine rotors not being aligned with the sun in a way to cast maximum shadow onto the proposed properties all of the time, the number of hours when shadow flicker would affect the aforementioned properties is anticipated to be far fewer.

13.1.5 Mitigation in the form a wind farm shadow flicker protocol has been proposed by the Applicant to avoid significant shadow flicker effects. With appropriate mitigation measures in place the impact from shadow flicker is predicted to be non-significant for the Proposed Development.

13.2 Introduction

13.2.1 This chapter considers the likely significant effects of shadow flicker associated with the operation of Neshion Energy Park ('the Proposed Development').

13.2.2 The Proposed Development is a renewable energy development comprised of up to eight wind turbines, a Battery Energy Storage System (BESS) and associated infrastructure adjacent to Sullom Voe Oil Terminal (SVT) and the Shetland Gas Plant in Shetland, Scotland. The assessment is based on the Proposed Development as described in **Chapter 2: Proposed Development (EIAR Volume 2)**.

13.2.3 The term 'shadow flicker' refers to 'the flickering effect caused when rotating wind turbine blades periodically cast shadows over neighbouring properties as they turn, through constrained openings such as windows. The magnitude of the shadow flicker varies both

[1] UK Government's Shadow Flicker Evidence Base as reported for DECC by Parsons Brinckerhoff. Available at: https://www.gov.uk/government/publications/update-of-uk-shadow-flicker-evidence-base [Accessed: 26/01/2026]

spatially and temporally and depends on a number of environmental conditions coinciding at any particular point in time, including, the position and height of the sun, wind speed, direction, cloudiness, and position of the turbine relative to a sensitive receptor'[1].

13.2.4 The specific objectives of the chapter are to:

- describe the shadow flicker baseline;
- describe the assessment methodology and significance criteria used in completing the impact assessment;
- describe the potential effects, including direct, indirect and cumulative effects;
- describe the mitigation measures proposed to address likely significant effects; and
- assess the residual effects remaining following the implementation of mitigation.

13.2.5 The assessment has been carried out by Ramboll UK Limited (Ramboll). The Lead Author is Scott Jamieson. Scott has five years' experience conducting Shadow Flicker assessments for wind farm developments across Scotland and Wales.

13.2.6 This chapter is supported by the following figures and technical appendices:

- Volume 3a: Figures
  - **Figure 13.1: Shadow Flicker Study Area and Receptors**.
- Volume 4: Technical Appendices
  - **Technical Appendix 13.1: Shadow Flicker Modelling Output**.

13.2.7 Figures and technical appendices are referenced in the text where relevant.

13.3 Assessment Methodology and Significance Criteria

Scope of Assessment

13.3.1 This chapter considers potential shadow flicker effects on properties within 10 rotor diameters (RD) of the proposed turbine locations. The Scottish Government web-based renewable advice for onshore wind turbines recommends that a separation between turbines and dwellings beyond 10 RD should avoid nuisance issues and annoyance to nearby residents[2]. The advice quotes:

'In most cases however, where separation is provided between wind turbines and nearby dwellings (as a general rule 10 RD), 'shadow flicker' should not be a problem.'

13.3.2 The assessment is based on the Proposed Development as described in **Chapter 2: Description of Proposed Development (EIAR Volume 2)**.

13.3.3 The scope of the assessment has been informed by consultation responses detailed in **Technical Appendix 1.1: Consultation Register (EIAR Volume 4)**.

13.3.4 Using proprietary specialist modelling software 'Windfarm' (RESoft Windfarm V5.1.1.4), an annual analysis of shadow flicker for the Proposed Development was carried out, taking into account the behaviour of the sun, the local topography and the turbine layout and dimensions.

13.3.5 It should be noted that the modelling analysis was performed using the following standard assumptions:

- the sun will always be visible during daylight hours (conservative assumption);

[2] Scottish Government, Onshore Wind Turbines: Planning Advice, (2014). Available online from: https://www.gov.scot/publications/onshore-wind-turbines-planning-advice/ (Accessed 21/01/2026)

- the turbine blades are always turning during daylight hours (conservative assumption);
- the alignment of the turbine rotor blades with respect to the sun's position will always produce maximum shadow casting (conservative assumption; it is unlikely that the wind, and therefore the rotor blades, will track the sun in practice);
- the analysis looks at shadow casting over the building from all directions rather than over vertical orientated windows only (conservative assumption);
- the intensity of the sun will be insufficient to cast strong shadows at elevations less than 2.0°;
- shielding due to features such as trees or other obstacles has not been taken into account; and
- terrain shielding, however, is modelled.

13.3.6 The significance of the shadow flicker effect to the surrounding properties has been informed by the Parsons Brinckerhoff (2011)[1] paper. Having considered this paper, it is recommended that shadow flicker at neighbouring offices and dwellings within 1.72 km should not exceed 30 hours per year or 30 minutes per day.

13.3.7 For the purposes of this assessment, values greater than 30 hours per year or 30 minutes per day are considered significant.

Potential Impacts Scoped Out

13.3.8 As shadow flicker is a phenomenon caused by the moving shadow of the turbine rotor being cast over a narrow opening, such as a window or open door, no shadow flicker effects from the construction or decommissioning of the Proposed Development are possible. Assessments of potential shadow flicker effects resulting from the construction and decommissioning of the Proposed Development has therefore been scoped out of the shadow flicker assessment.

13.3.9 Based upon a review of cumulative schemes, no properties identified as sensitive to shadow flicker from the Proposed Development are located within 10 RDs of any cumulative schemes. Therefore, no cumulative assessment was deemed necessary for the shadow flicker assessment.

13.3.10 A related visual effect to shadow flicker is that of reflected sunlight. Theoretically, should the light be reflected off a rotating turbine blade onto an observer then a stroboscopic effect could be experienced. In practice, a number of factors limit the severity of the phenomenon. Firstly, wind turbines have a semi-matt surface finish which means that they do not reflect light as strongly as materials such as glass or polished vehicle bodies. Secondly, due to the convex surfaces found on a turbine, the light would generally be reflected in a divergent manner. Thirdly, the variability in flow within a wind farm results in slightly differing orientation of rotor directions. Therefore, it is unlikely that an observer would experience simultaneous reflections from a number of turbines. Fourthly, as with shadow flicker, certain weather conditions and solar positions are required before an observer would experience the phenomenon. Therefore, it is concluded that the Proposed Development would not cause a material reduction to amenity owing to the reflected light, therefore the reflected light is scoped out and has not been considered in the assessment.

13.3.11 People with photosensitive epilepsy are usually sensitive to flickering light that is between 3 to 60 Herts (Hz); according to the Parsons Brinckerhoff (2011) paper[1] 'the maximum frequency of the shadowing effect arising from commercial-scale wind turbines is less than 1 Hz'. Therefore, any potential shadow flicker effects arising from the Proposed Development

are purely an effect on amenity, rather than having the potential to affect the health or wellbeing of occupants.

Method of Baseline Characterisation

Extent of the Study Area

13.3.12 The Shadow Flicker study area is comprised of a 10 RD (1720 m) assessment area surrounding each proposed turbine, in accordance with the Scottish Government advice[2]. The Parsons Brinckerhoff (2011) paper[1] states that at UK latitudes only properties within 130 degrees either side of north of turbines can be affected by shadow flicker. To undertake the shadow flicker assessment specialist modelling software 'Windfarm' has been used which accounts for the sun angle and movement. The study area is shown in **Figure 13.1: Shadow Flicker Study Area and Receptors**.

Desk Study

13.3.13 A desktop assessment was undertaken in February 2026 using OS Addressbase data, in order to identify all residential properties located within the study area. Computer modelling was used to present the extent of shadow flicker to those properties for the Proposed Development, assuming a worst-case scenario and providing a very conservative (i.e. high) estimate.

Modelling Methodology

13.3.14 A modelling exercise was carried out for the Proposed Development using a 172 m RD[3]. The computer software 'WindFarm' was used to identify potential areas susceptible to shadow flicker, and the extent of shadow flicker impact caused. This software identified the study area for the assessment based on candidate turbine dimensions and orientations, as well as model periods of predicted shadow flicker. The following model parameters were used:

- a candidate wind turbine with hub height of 114 m, a rotor diameter of 172 m and a tip height of 200 m[4];
- the maximum distance of shadow flicker influence considered is 10 times the RD (172 m x 10 = 1,720 m);
- the centre of the window (viewing height) is 2 m above ground level;
- each property has 2 windows facing the Proposed Development;
- Each window is 1 m by 1 m;
- the calculation year is 2026;
- the maximum sun height is 2° above the horizon; and
- topography has been considered using 10 m grid spaced digital terrain model (DTM) data and the Earth's curvature has been accounted for.

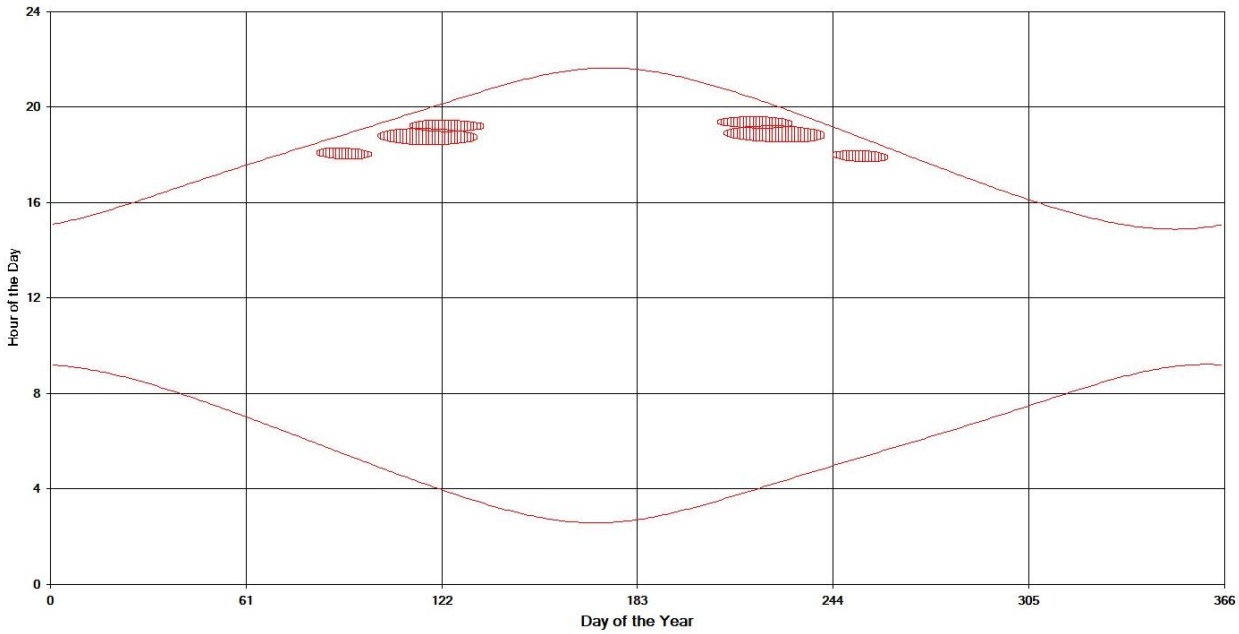
Model Output

13.3.15 For each property within the study area, the model predicted the number of days per year, maximum hours per day, mean hours per day and total hours per year that the property could experience shadow flicker. The model output is presented in **Table 13.1: Summary of Model Output**.

[3] 172m rotor diameter was used for EIAR purposes only.

[4] Parameters specified for the purpose of modelling potential shadow flicker only.

13.3.16 In addition, the model produces a graph illustrating the time of day and time of year shadow flicker effects could potentially arise for each property within the shadow flicker study area. An example graph for House 9 (H9) is illustrated in **Graph 13.1**.



Graph 13.1: Potential shadow flicker times on House 9, all windows from all turbines

13.3.17 The area between the two red lines represents daylight hours over the course of a calendar year (calculation year 2026). The red vertical hatched areas represent times when the shadow flicker effects from the Proposed Development could potentially occur at this property. A similar graph for each receptor that is predicted to experience shadow flicker effects is provided in **Technical Appendix 13.1: Shadow Flicker Modelling Output (EIAR Volume 4)**.

Limitations and Assumptions

13.3.18 A number of worst-case assumptions were made to generate the modelling output for the assessment. It should also be noted that even if a shadow flicker impact does occur at a specific location, this does not imply that it would be witnessed. Potential receptors may be occupying a room on the other side of the house, which is not impacted, or indeed absent from the location altogether (e.g. at work, on holiday) during the times of the shadow flicker events.

13.3.19 The use of these assumptions is considered to provide a precautionary basis for the purpose of this assessment.

13.3.20 The instances of shadow flicker would always be less than that predicted by the model. The occurrence of shadow flicker is only possible during the operation of the wind turbine (i.e. when the rotor blades are turning) and when the sky is clear enough for the sun to cast strong shadows. It is important to consider the following facts when making an assessment:

- Climatic conditions dictate that the sun is not always shining. Met Office data gives average annual sunshine hours for Lerwick, Shetland to be 25% of total daylight hours, based on

climate data from 1991-2020[5, 6]. Cloud cover during other times may obscure the sun and prevent shadow flicker occurrence. While some shadow may still be cast under slightly overcast conditions, no shadow at all would be cast when heavy cloud cover prevails.

- Objects such as trees or walls may surround windows and obscure the view of the turbine and hence prevent or limit shadow flicker.
- During operation, the turbine rotors would automatically orientate themselves to face the prevailing wind direction. This means the turbine rotors would not always be facing the affected window and in fact would sometimes be 'side-on' to the window. Very little of the blade movement would be visible during such occurrences and therefore the potential for shadow flicker is reduced.

13.4 Baseline Conditions

13.4.1 The desk study identified 11 properties within the shadow flicker study area from the OS Addressbase data. The properties included in the assessment are shown in **Figure 13.1: Shadow Flicker Study Area and Receptors (EIAR Volume 3a)**.

13.4.2 The 11 properties within the shadow flicker study area are as follows:

- H1 – Isles View, located approximately 1.5 km south west of Turbine 7;
- H2 – The Brough, located approximately 1.4 km south west of Turbine 7;
- H3 – Toog located, approximately 1.4 km south west of Turbine 7;
- H4 – Da Peerie Hoose, located approximately 1.4 km south west of Turbine 7;
- H5 – Soundview, located approximately 1.3 km west of Turbine 7;
- H6 – Auchensalt, located approximately 1.3 km west of Turbine 7;
- H7 – Norden, located approximately 1.3 km west of Turbine 7;
- H8 – Quoy Lee, located approximately 1.2 km west of Turbine 7;
- H9 – White House, located approximately 1.1 km north west of Turbine 7;
- H10 – Lighthouse, located approximately 1.3 km north west of Turbine 7; and
- H11 – Booth of Toft, located approximately 1.4 km north west of Turbine 7.

Future Baseline

13.4.3 If a new property were to be constructed within the shadow flicker study area during the operational phase of the Proposed Development, this would create a potential new shadow flicker receptor. No consented or proposed residential developments have been identified within the shadow flicker study area on the Shetland Islands Council (SIC) Planning Portal at present.

13.4.4 In addition, if any of the existing properties within the study area were modified, for example, a new window or door was installed, or the property is extended, this could alter the individual property's susceptibility to shadow flicker. Again, no consented or proposed planning applications to modify existing properties within the shadow flicker study area have been identified on the SIC Planning Portal.

[5] Met Office (2022). *Lerwick (S. Screen) (Shetland Islands) Location-specific long-term averages.* [online] Met Office. Available at: https://www.metoffice.gov.uk/research/climate/maps-and-data/location-specific-long-term-averages/qfxnj5fx4. (Accessed 26/02/2026)

[6] Percentage sunshine hours were calculated by dividing total sunshine hours (1158) by total daylight hours (4555) experienced in Lerwick, Shetland.

13.4.5 No further changes to the shadow flicker baseline in the absence of the Proposed Development are anticipated.

13.5 Assessment of Likely Effects

13.5.1 The results of the shadow flicker model for the Proposed Development are detailed in **Table 13.1**.

Table 13.1: Summary of Model Output

House	Easting	Northing	Days Per Year	Max Hours Per Day	Mean Hours Per Day	Total Hours per Year	Total Hours per Year (incl. adjustment for sunlight)*
H1	443690	1177404	35	0.48	0.32	11.08	2.8
H2	443643	1177391	35	0.5	0.33	11.52	2.9
H3	443738	1177098	16	0.2	0.14	2.22	0.6
H4	443736	1177071	21	0.27	0.17	3.54	0.9
H5	443631	1177017	58	0.48	0.27	15.83	4.0
H6	443629	1176995	56	0.48	0.27	15.37	3.9
H7	443620	1176959	58	**0.51**	0.27	15.53	3.9
H8	443503	1176574	95	**0.97**	**0.53**	**49.88**	12.5
H9	443385	1176496	104	**1.0**	**0.6**	**63.18**	15.8
H10	443481	1176152	133	**0.58**	0.44	**58.12**	14.5
H11	443558	1176115	96	**0.55**	0.41	**39.46**	9.9

*Met Office data shows that the Shetland Islands received an average of 25% sunshine of the total daylight hours annually. This percentage is applied to total annual hours column to estimate the expected total sunshine hours for the year, rounded to one decimal place.

Bolded text represents where the assessment indicates that the potential number of shadow flicker hours experienced at the receptor exceeds 30 hours per year and/ or 30 minutes per day (0.5 hours per day).

13.5.2 The assessment indicates that all 11 properties could be subject to shadow flicker from the proposed turbines. **Table 13.1** provides a summary of the results and **Figure 13.1: Shadow Flicker Study Area and Receptors**, details the house locations relative to the Proposed Development.

13.5.3 As shown in **Table 13.1**, the '30 minutes per day' threshold would be exceeded in the worst case scenario for H7, H8, H9, H10 and H11; while the '30 hours per year' threshold would be exceeded in the worst case scenario for H8, H9, H10 and H11.

13.5.4 When adjusting the potential hours per year of shadow flicker for sunlight hours, the potential hours per day of shadow flicker falls below the '30 hours per year' for all receptors. As such the impact of shadow flicker on H7, H8, H9, H10 and H11 is greater than 30 minutes per day but less than 30 hours per year, the effect is **Significant Adverse** in terms of daily exposure and **Not Significant** in terms of yearly total.

13.5.5 H1, H2, H3, H4, H5 and H6 would experience acceptable levels of shadow flicker in accordance with assessment criteria. The shadow flicker levels at these properties would be less than 30 minutes per day and 30 hours per year and as such **Not Significant**.

13.5.6 It should be emphasised that this analysis provides an extremely conservative estimate of the extent that the properties would be affected by shadow flicker. In addition to the frequent cloud cover which is factored in to **Table 13.1**, low irradiance intensity, turbines not turning at all times and turbine rotors not being aligned with the sun in a way to cast maximum shadow onto the proposed property, would further reduce the actual amount of shadow flicker affecting the aforementioned properties.

13.6 Additional (Secondary) Mitigation

13.6.1 Additional (secondary) mitigation comprises site-specific mitigation which has been included to reduce the magnitude of impact/significance of effect identified through the EIA.

13.6.2 To reduce the significance of effect of shadow flicker, the Applicant proposes that prior to the erection of the first turbine, a Wind Farm Shadow Flicker Protocol would be submitted to and approved in writing by the SIC. This would set out the protocol to be followed should a shadow flicker complaint be received from a receptor within the study area and 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 minimise impacts. Operation of the Proposed Development would be undertaken in accordance with the Wind Farm Shadow Flicker Protocol. It is proposed that this is secured through an appropriate condition attached to the consent.

13.6.3 A summary of the additional mitigation is set out in **Table 13.2**.

Table 13.2: Summary of Additional Mitigation					
Reference	**Phase***	**Description of Mitigation**	**Purpose of Mitigation**	**Means of Implementation**	**Consultation or approval required.**
SF01	C/O	Prior to the erection of the first turbine, a Wind Farm Shadow Flicker protocol would be submitted to and approved by SIC. The protocol would set out the steps to be followed should a shadow flicker complaint be received from a receptor within the study area and potential mitigation measures.	To mitigate potential disturbance to properties within the shadow flicker study area.	Planning condition.	Approval from SIC

*C=construction, O=operation and maintenance.

13.7 Assessment of Residual Effects

13.7.1 With appropriate mitigation measures in place the residual effects during operation of the Proposed Development would be **Not Significant** on all receptors.

13.8 Monitoring

13.8.1 No monitoring is required as there are no significant residual effects as a result of the operation of the Proposed Development.

13.9 Summary

13.9.1 This chapter provides an assessment of the potential impacts on residential amenity resulting from shadow flicker from the Proposed Development. The shadow flicker assessment has been undertaken based on the maximum tip height of 200 m and a rotor diameter of 172 m for the Proposed Development. A study area of 10 rotor diameters (1.72 km) around each turbine was considered and 11 receptors were found to be potentially susceptible to shadow flicker within the study area.

13.9.2 There are no published guidelines in Scotland that define acceptable levels of shadow flicker. In the absence of specific guidelines, the assessment has considered the Parsons Brinckerhoff (2011) paper[1] which considers shadow flicker guidance from a number of countries. Best Practice suggests shadow flicker should not be allowed to exceed 30 hours per year or 30 minutes per day. As such, properties where shadow flicker would potentially exceed these thresholds would be subject to significant effects, in the absence of mitigation.

13.9.3 The assessment indicates that the potential number of shadow flicker hours experienced exceeds 30 minutes per day at five of the properties identified within the study area. In the absence of mitigation, shadow flicker effects are potentially significant for these receptors.

13.9.4 This analysis provides an extremely conservative estimate of the extent that the properties would be affected by shadow flicker. Due to frequent cloud cover, low irradiance intensity, turbines not turning at all times, the presence of intervening vegetation and turbine rotors not being aligned with the sun in a way to cast maximum shadow onto the proposed properties all of the time, the number of hours when shadow flicker would affect the aforementioned properties is anticipated to be far fewer.

13.9.5 Mitigation has been proposed by the Applicant to avoid significant shadow flicker effects. **Table 13.3** provides a summary of the effects. With appropriate mitigation measures in place the impact from shadow flicker is predicted to be non-significant for the Proposed Development.

Table 13.3: Summary of Potential Significant Effects of the Proposed Development

Impact	Likely Significant Effect	Mitigation Proposed	Residual Effect	Monitoring
Disturbance to five properties within the shadow flicker study area.	Significant	SF01	Not significant	Not required.

14 Schedule of Environmental Mitigation

14.1 Introduction

14.1.1 The purpose of this chapter is to summarise the mitigation measures proposed in each of the technical chapters to avoid, reduce or offset impacts which could otherwise give rise to significant residual environmental effects in regard to the Proposed Development.

14.1.2 The Proposed Development is a renewable energy development comprised of up to eight wind turbines, a Battery Energy Storage System (BESS) and associated infrastructure adjacent to Sullom Voe Oil Terminal (SVT) and the Shetland Gas Plant in Shetland, Scotland, as described in **Chapter 2: Description of the Proposed Development (EIAR Volume 2)**.

14.1.3 In addition, some good practice environmental management measures and commitments have been proposed to further reduce environmental effects which are not considered to give rise to likely significant effects with or without mitigation.

14.1.4 The main aim of the design process was to 'design out' the potential for significant environmental effects as far as possible. Embedded mitigation in the form of design solutions are presented in **Chapter 3: Design Evolution and Alternatives (EIAR Volume 2),** in particular in **Table 3.1** which provides a detailed review of mitigation achieved through design. As such, these measures have not been replicated here.

14.1.5 Most of the pre-construction and construction phase mitigation would be delivered through a Construction Environmental Management Plan (CEMP). The outline content of the proposed CEMP is provided in **Technical Appendix 2.1: Outline CEMP (EIAR Volume 4)**. Further details on specific measures to be included in the final CEMP are contained in each of the technical chapters of the Environmental Impact Assessment Report (EIAR), where relevant.

14.1.6 Throughout the EIAR, technical disciplines have considered the likely significant effects of the Proposed Development with consideration of embedded mitigation and commitments. Where significant effects have been identified, additional mitigation is proposed to minimise these effects where possible. A summary of these measures is provided in **Table 13.1** below. It is anticipated that the mitigation measures outlined in this table would be secured through appropriately worded conditions of consent.

Table 14.1 Schedule of Mitigation and Environmental Management Measures					
Topic	**Phase***	**Reference**	**Description**	**Purpose of Mitigation Measure**	**Consultation or Approval Required**
Seascape, Landscape and Visual Amenity	**Standard Mitigation**				
	N/A	N/A	None identified (no standard mitigation beyond typical construction management measures)	N/A	N/A
	Additional Mitigation				
	N/A	N/A	None identified (all mitigation implemented through embedded design and standard methods)	N/A	N/A
Cultural Heritage	**Additional Mitigation**				
	C	CH01	An archaeological watching brief during any ground works on the Site, particularly where the route of the former field boundary (Asset 130) would be impacted.	To identify any potential previously undiscovered archaeological remains and mitigate the potential impacts to any such remains.	Submitted to Shetland Islands Council (SIC) for approval.
	C	CH02	A metal-detecting survey around the areas in the southern portion of the Site south of Hill of Garth, particularly around the southern borrow pit.	To identify any potential remains of the crashed WW2 aircraft (Asset 66) and mitigate the potential loss of any such remains.	Submitted to SIC for approval.
	C	CH03	Extraction of sediment cores across areas of deep peat around the proposed locations of Turbine 8 and the construction compound.	To better understand the past environments and mitigate for any potential loss of preserved palaeoenvironmental data.	Submitted to SIC for approval.
	O	CH04	Provision of a Heritage Interpretation Plan - this could range from interpretation boards or heritage trails to online and digital interpretations and should be discussed in consultation with Historic Environment Scotland (HES) and SIC.	To offset the potential impacts to the settings of Scheduled Monuments as a result of the Proposed Development.	Submitted to SIC for approval, in consultation with HES.
Ecology	**Standard Mitigation**				
	DD	EC01	A condition to ensure appropriate mitigation at the detailed design stage which would result in no direct/indirect impacts on the integrity of the Special Area of Conservation (SAC).	To ensure no direct/indirect impacts on the integrity of the Yell Sound Coast SAC.	Submitted to SIC for approval, in consultation with NatureScot.
	C	EC02	Pre-construction surveys would be undertaken for otters and mountain hare (as required). A watching brief would also be kept for these species. Construction workers would be given toolbox talks to provide information with regard to these species.	To avoid potential impacts on protected terrestrial mammals.	Included in Construction Environmental Management Plan (CEMP) and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
	C, O	EC03	Species Protection Plan would be developed for otters and mountain hare (as required). This would include identifying and implementing work exclusion zones wherever necessary and ensuring construction work near the coastline (Turbine 3 and Turbine 4) would not be undertaken during the peak otter breeding period (e.g. June) to avoid disturbance of breeding otter.	To ensure otter and mountain hare (as required) are protected and any legal requirements are followed.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
	C	EC04	Exposed pipe systems would be capped when contractors are off site, and exposed trenches or holes would be covered or exit ramps provided.	To prevent protected mammals (otter and mountain hare) becoming trapped	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
	C	EC05	An Ecological Clerk of Works (ECoW) would be present during construction of the Proposed Development during construction work.	To implement mitigation measures, ensuring avoidance and minimisation of impacts on ecological features such as Near-Natural blanket bog, bog pools and protected terrestrial mammals.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
	C, O	EC06	Any security lighting would be directed away from any potentially sensitive mammal areas (e.g. watercourses).	To prevent disturbance to protected mammals.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
	C	EC07	Chemicals would be stored in a safe and secure place away from watercourses following best practice guidance.	To prevent potential pollution.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
	C	EC08	Pre-construction water quality, macro-invertebrate and fish baseline surveys would be undertaken prior to construction commencing to provide a pre-construction baseline.	To ensure effective monitoring and protection of the aquatic environment during construction.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
	C, O	EC09	Mammal friendly designs (with appropriate mammal ledges to provide routes for mammals to pass through) would be used for large culverts and bridges to provide safe otter access and crossing points.	To maintain habitat connectivity and safe movement routes for otters and other mammals.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.

Table 14.1 Schedule of Mitigation and Environmental Management Measures					
Topic	**Phase***	**Reference**	**Description**	**Purpose of Mitigation Measure**	**Consultation or Approval Required**
	C, O	EC10	If fencing is used it would be mammal friendly fencing to avoid blocking potential routes (they would have regular small gaps for mammals to move through).	To avoid obstruction of mammal movement and prevent habitat fragmentation.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
	C, O	EC11	Low vehicle speed limits (e.g. 15 mph) would be imposed during operation and construction to reduce the likelihood of injury or mortality of otters and mountain hare.	To reduce the risk of vehicle collision, injury or morality to otters and mountain hare.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
	C, O	EC12	Otter crossing road signs would be located at watercourse crossings to further help prevent vehicle traffic mortality during operation.	To reduce the risk of vehicle related mortality of otters.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
	C	EC13	A Peatland Management Plan (PMP) would be fully developed. The topsoil/acrotelm would be preserved where possible, from habitat that is lost. It would be laid over the top of the areas to be reinstated or used in habitat restoration	To minimise habitat loss and support effective habitat reinstatement and restoration.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
	Additional Mitigation				
	C, O	EC14	Implementation of the Outline Biodiversity Enhancement and Habitat Management Plan (OBEHMP) Objective 1: peatland restoration within the Land Under Applicant's Control as detailed in **Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**.	Peatland Restoration	Submitted to SIC for approval, in consultation with NatureScot.
	C, O	EC14	Implementation of OBEHMP Objective 4: creation of artificial otter holts as detailed in **Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**.	Creation of Artificial Otter Holts	Submitted to SIC for approval, in consultation with NatureScot.
Ornithology	**Standard Mitigation**				
	C	OR01	Breeding Bird Protection Plan	To avoid damage and destruction of nests and to comply with the Wildlife and Countryside Act (1981, as amended).	Submitted to SIC for approval, in consultation with NatureScot.
	C	OR02	CEMP	To avoid sensitive habitats and protected species features.	Submitted to SIC for approval, in consultation with other relevant statutory consultees.
	C	OR03	Pollution Prevention Plan	To avoid pollution to watercourses and waterbodies that may be used by birds and other protected species.	Submitted to SIC for approval, in consultation with other relevant statutory consultees.
	C	EC05	An ECoW would be present during construction of the Proposed Development during construction work.	To implement mitigation measures, ensuring avoidance and minimisation of impacts on ecological features such habitats, birds and other protected species.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees.
Hydrology, Hydrogeology, Geology and Soils	**Standard Mitigation**				
	C	HH01 GS01	Preparation of a CEMP to include best working practice to be employed at the Site, particularly with respect to works on or near watercourses and measures for the control of pollution (including sediment laden water) at the Site. The CEMP would include construction methods and environmental protection measures applying best practice guidance as set out in applicable SEPA Guidance for Pollution Prevention (GPPs). Implementation of these measures during all aspects of the construction phase would ensure construction activity would not cause adverse effects to sensitive receptors. The detailed CEMP would be prepared by the Principal Contractor prior to the commencement of construction.	Mechanism for implementation of best working practice in relation to the water environment and management of peat/carbon rich soils.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
	C, O	HH02	The appointed Contractor would compile a Pollution Prevention Plan (PPP) which would include details of proposals for the storage and handling of potentially contaminative materials, construction phase Sustainable Drainage Systems (SuDS), construction site plans and proposed drainage management measures. The PPP would form part of the CEMP. Storage of potentially contaminative materials at least 50 m from watercourses. Fuels, oils or chemicals stored on-site would be located over an impervious base and in accordance with the Environmental Authorisations Scotland Regulations (EASR). Petrol interceptors and spill kits would be	To ensure water quality is maintained, prevent the release of pollutants to the water environment and maintain pre-development run-off rates.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.

Table 14.1 Schedule of Mitigation and Environmental Management Measures

Topic	Phase*	Reference	Description	Purpose of Mitigation Measure	Consultation or Approval Required
			utilised where chemical spillage is a possibility. Measures to form part of the PPP. Implementation of construction phase SuDS to provide a surface water management and treatment train. Measures would ensure that pre-development runoff rates are maintained and that rates of runoff to watercourses are not increased. To form part of the CEMP. Best practice working with concrete and concrete washout management to be included within the PPP.		
	C	HH03	Sediment capture methods to be implemented at the Site would be detailed in a Drainage Impact Assessment (DIA) which would be prepared by the appointed Contractor.	Prevention of the release of sediment laden water and ensure long term function of drainage and treatment features.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
	C, O	HH04	SuDS maintenance programme/drainage asset maintenance plan to be included within DIA.	Ensure long term function of drainage and treatment features.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
	C, O	HH05	Environmental Clerk of Works (EnvCoW) supervision for sensitive works (incl. BESS).	Supervision/oversight of mitigation implementation and operatives on sensitive tasks.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
	C, O	HH06	Any requirement for monitoring water quality within watercourses downstream of the Proposed Development would be detailed in the CEMP.	Monitor effectiveness of mitigation with regards to water quality.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
	C, O	HH07	Detailed proposals for the management of surface water runoff at the Site to be prepared by appointed Contractor. .	Management of surface water runoff rates and prevention of the release of sediment laden water or pollutants to controlled waters.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
	C, O	HH08	Drainage design is to be prepared by an appointed Contractor at the detailed design stage to ensure surface water supply is maintained to downslope habitats. Measures would include: ▪ Installation of upslope cut off drains to collect surface water runoff from upslope locations and distribute runoff to downslope areas; ▪ Installation of cross drains below tracks at regular intervals to ensure the distributed conveyance of runoff across linear features (i.e., the collection and downslope release of runoff should not create new preferential surface water flow paths); ▪ Consideration to be given to the installation of granular, permeable sub-base materials on tracks to maintain flows of soil water; and ▪ Installation of SuDS measures to ensure the settlement of sediments, prior to distributed release over downslope vegetated area.	Distribution of surface water to potentially sensitive habitats.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
	C, O	HH09	Watercourse crossings to be designed, in line with SEPA requirements, to accommodate flows of a 1 in 200 (0.5%) annual probability, inclusive of an allowance for climate change. Watercourse crossing designed to minimise disruption to bed and banks and allow the continued passage of aquatic and non-aquatic species. Closed culverts, where employed, would be oversized to allow naturalisation of the culvert bed substrate, ensuring they don't obstruct passage of fish or other fauna. A detailed Watercourse Crossing Plan would be prepared by appointed Contractor.	Flood risk management, watercourse protection.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
	C, O	GS02	An outline PMP is provided in **Technical Appendix 8.5: Outline Peat Management Plan (EIAR Volume 4)**. The appointed Contractor would prepare a detailed PMP prior to the commencement of construction. The PMP including construction and operational mitigation measures as appropriate, including mitigation measures for managing peat slide risk are detailed in **Technical Appendix 8.6: Peat Landslide Hazard Risk Assessment (EIAR Volume 4)**.	Mechanism for implementation of best working practices in relation to peat and soils.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.

Table 14.1 Schedule of Mitigation and Environmental Management Measures					
Topic	**Phase***	**Reference**	**Description**	**Purpose of Mitigation Measure**	**Consultation or Approval Required**
	C	GS03	Micrositing tolerances to be used in the event of encountering unexpected pockets of deep peat. All micrositing to be supervised by an EnvCoW or suitably appropriately experienced engineer.	To reduce as far as practicable the potential for loss/disturbance to peat and carbon rich soils.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
	Additional Mitigation				
	Pre-C	GS05	Update Peatland Landslide Hazard Risk Assessment (PLHRA) as necessary following additional post-consent ground investigation and detailed design, should areas of Moderate Risk of peat slide remain, then micrositing infrastructure away from these areas is recommended. Where micrositing is not practicable then excavation of the peat to remove the potential risk would be required.	To mitigate the peat slide risk at Turbine 4 and 8 as well as six sections of access track by way of post-consent detailed ground investigation, updated PLHRA and detailed design.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
	C	GS06	The mitigation approach for the Proposed Development uses a combination of reuse and restoration which has formed the peat management strategy as described in **Technical Appendix 8.5: Outline Peat Management Plan (EIAR Volume 4)**. The primary reuse strategy for excavated peat at the Proposed Development is to reinstate temporary construction areas, including the borrow pit, and to restore peat within permanent infrastructure locations (e.g. turbine foundations/hardstand areas), but also use of surplus peat for the restoration and enhancement of habitats at the Site as detailed in **Technical Appendix 6.5: Outline Biodiversity Enhancement and Habitat Management Plan (EIAR Volume 4)**, for example the infilling of artificial drainage channels, cuttings and erosion features and gullies.	To mitigate surplus peat generated that cannot be reinstated, and facilitate habitat restoration proposals. This is to be delivered through the OBEHMP, as well as the detailed PMP.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
Traffic and Transport	**Additional Mitigation**				
	C	TT01	Construction Traffic Management Plan (CTMP) which would confirm the route proposals for the Abnormal Indivisible Load (AIL) vehicles and general construction vehicles, timing of deliveries, route condition survey details and measures proposed to mitigate likely significant transport effects. The CTMP would also ensure that there is a line of communication with other construction projects in the area so that high traffic generating activities, such as stone and concrete importation, can be managed to minimise traffic impact.	To effectively manage and mitigate as far as possible effects of construction traffic on the local road network.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
Noise	**Standard Mitigation**				
	C	NV01	Best practice noise control measures, as detailed in BS 5228-1:2014, will be included in the CEMP.	Used to minimise construction noise impacts	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
	Additional Mitigation				
	C	NV02	Restriction of construction noise activities related to the borrow pit to 07:00 - 19:00 weekdays and 07:00 - 13:00 Saturdays in the event of cumulative construction noise with the Sullom Voe Oil Terminal Wind Turbines construction.	To ensure cumulative noise levels remain below BS 5228 threshold levels during evening and weekend periods. To be determined dependent on local conditions. Guidance on this to be included within the CEMP.	Included in CEMP and submitted to SIC for approval, in consultation with other relevant statutory consultees as necessary.
Aviation	**Standard Mitigation**				
	C/O	AV01	Pre-construction provision of information on the development to the Civil Aviation Authority (CAA) and Ministry of Defence (MoD) in accordance with Article 225A of the Air Navigation Order (ANO)	To provide information on the Proposed Development to aircrew.	Submitted to SIC for approval, in consultation with other relevant consultees, including CAA and MoD.
	C/O	AV02	Aviation Lighting Strategy to provide confirmation of aviation lighting on the Proposed Development in accordance with Article 222 of the ANO	To provide warning of obstacles to aircrew flying at low level at night.	Submitted to SIC for approval, in consultation with other relevant consultees, including CAA
	Additional Mitigation				

Table 14.1 Schedule of Mitigation and Environmental Management Measures					
Topic	**Phase***	**Reference**	**Description**	**Purpose of Mitigation Measure**	**Consultation or Approval Required**
	O	AV03	Radar mitigation scheme for Primary Surveillance Radar: provided to confirm implementation of Non-Auto Initiation Zone (NAIZ) on Saxa Vord primary surveillance radars (PSR)	Eliminate false plots on radar. To be determined by planning condition requiring approval and implementation of Radar Mitigation Scheme.	Submitted to SIC for approval, in consultation with other relevant consultees, including MoD
	C/O	AV04	Radar mitigation scheme for Harbour Authority: confirming radar network reconfiguration to accommodate Veri Energy development	Eliminate false plots on radar. To be determined by planning condition requiring successful completion of radar network reconfiguration.	Submitted to SIC for approval, in consultation with Sullom Voe Harbour Authority required
Telecommunications	**Additional Mitigation**				
	C/O	TC01	Telecommunication Links Safeguarding Plan: Confirming commercial agreement with link owner for installation of bayed antenna configuration at each end of the link	Mitigate reflection/scattering effects on JRC scanning telemetry link.	Submitted to SIC for approval.
	C/O	TC02	Telecommunication Links Safeguarding Plan: Confirming reduction of T1 and T8 micrositing allowance from 100 m to 15 m	Mitigate reflection/scattering effects on JRC scanning telemetry link	Submitted to SIC for approval.
Shadow Flicker	**Additional Mitigation**				
	C/O	SF01	Prior to the erection of the first turbine, a Wind Farm Shadow Flicker protocol would be submitted to and approved by SIC. The protocol would set out the steps to be followed should a shadow flicker complaint be received from a receptor within the study area and potential mitigation measures.	To mitigate potential disturbance to properties within the shadow flicker study area. To be determined by a planning condition.	Submitted to SIC for approval.

*C=construction, O=operation and maintenance, DD= detailed design

15 Summary of Residual Effects

15.1 Introduction

15.1.1 The purpose of this chapter is to summarise the significant residual effects identified in each of the technical chapters for the Proposed Development.

15.1.2 The Proposed Development is a renewable energy development comprised of up to eight wind turbines, a Battery Energy Storage System (BESS) and associated infrastructure adjacent to Sullom Voe Oil Terminal (SVT) and the Shetland Gas Plant in Shetland, Scotland, as described in **Chapter 2: Description of the Proposed Development (EIAR Volume 2)**.

15.1.3 These residual effects encompass effects that remain significant following implementation of mitigation measures as set out in **Chapters 4 – 13 (EIAR Volume 2)** and as summarised in **Chapter 14: Schedule of Environmental Mitigation (EIAR Volume 2)**.

15.1.4 The significant residual effects listed within this chapter were identified in accordance with the methodology put forth within each technical chapter. Those effects not identified as significant are set out in the corresponding technical chapters but are not listed here.

15.1.5 No significant residual effects have been identified for the following topics:

- Ecology
- Ornithology
- Hydrology, Hydrogeology, Geology and Soils
- Traffic, Transport and Access
- Noise
- Aviation
- Telecommunications
- Shadow Flicker

Table 15.1 Summary of Significant Residual Effects				
Description of effect	**Likely Significance of Effect**	**Mitigation Measure**	**Residual Effect**	**Monitoring**
Chapter 4: Seascape, Landscape and Visual Amenity				
Construction				
Impacts on landscape fabric	N/A	N/A	Moderate and Significant	N/A
Operation				
Impacts on Landscape and Coastal Character				
Impacts on LCT 350 Peatland and Moorland – host unit	N/A	N/A	Major/Moderate and Significant within 1.5 km	N/A
Impacts on LCT 350 Peatland and Moorland – Calbeck Ness unit	N/A	N/A	Moderate and Significant within 5 km	N/A
Impacts on LCT 350 Peatland and Moorland – Gluss Ayre unit	N/A	N/A	Moderate and Significant within 5 km	N/A
Impacts on LCT 354 Farmed and Settled Voes and Sounds – Toft, Mossbank and Lunna and North Nesting units	N/A	N/A	Moderate and Significant within 5 km	N/A
Impacts on LCT 356 Small Uninhabited Islands	N/A	N/A	Moderate and Significant within 5 km	N/A
Impacts on LCT 349 Major Uplands – Southern Unit	N/A	N/A	Major/Moderate and Significant within 5 km	N/A
Impacts on LCT 355 Coastal Edge – North Roe (Southern Unit)	N/A	N/A	Moderate and Significant	N/A
Impacts on CCA 27 Yell Sound	N/A	N/A	Major/Moderate and Significant within 2 – 3 km	N/A

Table 15.1 Summary of Significant Residual Effects				
Description of effect	**Likely Significance of Effect**	**Mitigation Measure**	**Residual Effect**	**Monitoring**
			Moderate and Significant within 3 – 6 km.	
Impacts on CCA 3 Lunna Ness	N/A	N/A	Moderate and Significant within 5 km.	N/A
Impacts on Visual Amenity and Views				
Impacts on Mossbank	N/A	N/A	Major/Moderate and Significant – in the northern most part of the village only	N/A
Impacts on Scatsta, Graven and Garth Area	N/A	N/A	Major/Moderate and Significant	N/A
Impacts at Ollaberry and North Gluss	N/A	N/A	Major/Moderate and Significant	N/A
Impacts at Housetter	N/A	N/A	Major/Moderate and Significant	N/A
Impacts at Lunna Peninsula	N/A	N/A	Major/Moderate and Significant	N/A
Impacts at West Yell	N/A	N/A	Moderate and Significant	N/A
Impacts at Ulsta and Copister	N/A	N/A	Major/Moderate and Significant	N/A
Impacts on the A968	N/A	N/A	Moderate and Significant at Swinster and south of West Sandwick on Yell	N/A

Table 15.1 Summary of Significant Residual Effects				
Description of effect	**Likely Significance of Effect**	**Mitigation Measure**	**Residual Effect**	**Monitoring**
			Major/Moderate and Significant at Toft and to the north of Ulsta.	
Impacts on the B9076	N/A	N/A	Major/Moderate and Significant at Houb of Scatsta and Graven and at the A968 junction.	N/A
Impacts on the B9079	N/A	N/A	Major/Moderate and Significant at Ollaberry.	N/A
Impacts on the B9081	N/A	N/A	Major/Moderate and Significant at Ulsta.	N/A
Impacts on Toft-Ulsta Ferry Route	N/A	N/A	Major/Moderate and Significant	N/A
Impacts on Core Path CPPDe03 at Mossbank	N/A	N/A	Major/Moderate and Significant	N/A
Impacts on Core Path CPPN13 at Ollaberry	N/A	N/A	Major/Moderate and Significant	N/A
Impacts on Core Path CPPN08 at Ronas Hill	N/A	N/A	Major/Moderate and Significant	N/A
Impacts on Core Path CPPNL04 at Lunna Peninsula	N/A	N/A	Major/Moderate and Significant	N/A
Impacts on NCN1	N/A	N/A	Moderate and Significant to Major/Moderate and Significant	N/A
Impacts on Representative Viewpoints				
Viewpoints 11, 18 and 20	N/A	N/A	Moderate and Significant	N/A
Viewpoints 3-5, 7, 9, 10, 13, 21, 22 and 26	N/A	N/A	Major/Moderate and Significant	N/A

Table 15.1 Summary of Significant Residual Effects				
Description of effect	**Likely Significance of Effect**	**Mitigation Measure**	**Residual Effect**	**Monitoring**
Viewpoints 8, 12 and 25	N/A	N/A	Major and Significant	N/A
Impacts on Landscape Designations				
Shetland NSA North Roe Area SLQ2	N/A	N/A	Moderate and Significant in part of the North Roe Area Integrity of NSA not compromised	N/A
Night-time Effects				
Mossbank	N/A	N/A	Moderate and Significant	N/A
Ulsta	N/A	N/A	Moderate and Significant	N/A
Residential properties within 2 km: P8 Quoy Lee, P9 Whiytehouse, P10 Lighthouse and P11 Booth of Toft	N/A	N/A	Major/Moderate and Significant from external areas only	N/A
A968 at Ulsta	N/A	N/A	Moderate and Significant	N/A
Cumulative Operation				
Scenario 2 (Consented)				
Impacts on Landscape and Coastal Character	N/A	N/A	No additional cumulative effect compared to the operational baseline.	N/A
Impacts on Visual Amenity and Views	N/A	N/A	No additional cumulative effect compared to the operational baseline.	N/A
Impacts on Representative Viewpoints				
Viewpoints 11 and 20	N/A	N/A	Moderate and Significant	N/A
Viewpoints 5, 7, 10, 13, 21, 22 and 26	N/A	N/A	Major/Moderate and Significant	N/A

Table 15.1 Summary of Significant Residual Effects				
Description of effect	**Likely Significance of Effect**	**Mitigation Measure**	**Residual Effect**	**Monitoring**
Viewpoints 8 and 12	N/A	N/A	Major and Significant	N/A
Impacts on Landscape Designations				
Shetland NSA North Roe Area SLQ2	N/A	N/A	Moderate and Significant in part of the North Roe Area Integrity of NSA not compromised	N/A
Scenario 3 (In Planning)				
Impacts on Landscape and Coastal Character	N/A	N/A	No additional cumulative effect compared to the operational and consented baseline.	N/A
Impacts on Visual Amenity and Views	N/A	N/A	No additional cumulative effect compared to the operational and consented baseline.	N/A
Impacts on Representative Viewpoints				
Viewpoints 11, 18 and 20	N/A	N/A	Moderate and Significant	N/A
Viewpoints 3, 9, 10, 13, 22 and 26	N/A	N/A	Major/Moderate and Significant	N/A
Viewpoint 12	N/A	N/A	Major and Significant	N/A
Impacts on Designated Landscapes				
Shetland NSA North Roe Area SLQ2	N/A	N/A	Moderate and Significant in part of the North Roe Area Integrity of NSA not compromised	N/A
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Construction				

Table 15.1 Summary of Significant Residual Effects				
Description of effect	**Likely Significance of Effect**	**Mitigation Measure**	**Residual Effect**	**Monitoring**
Physical impacts to previously unrecorded assets within the Site.	Up to Major (Significant)	Archaeological watching brief during any ground works, as agreed with Shetland Islands Council (mitigation reference: CH01). Upon identification of any previously unrecorded remains a decision on the necessary further mitigation would be made and impact would either be avoided, minimised or offset via preservation by record.	None to Major (Significant) but offset.	Not required
Operation				
Impact to the setting of the Scheduled Graven cairn (Asset 16).	Moderate (Significant)	None beyond embedded and standard mitigation and potential enhancement opportunities (mitigation reference: CH04).	Moderate (Significant)	Not Required
Impact to the setting of the Scheduled south east Crooksetter Hill cairn (Asset 32).	Moderate (Significant)	None beyond embedded and standard mitigation and potential enhancement opportunities (mitigation reference: CH04).	Moderate (Significant)	Not Required
Impact to the setting of the Scheduled north west Crooksetter Hill cairn (Asset 35).	Moderate (Significant)	None beyond embedded and standard mitigation and potential enhancement opportunities (mitigation reference: CH04).	Moderate (Significant)	Not Required
Cumulative				
Impact to the setting of the Scheduled Graven cairn (Asset 16).	Moderate (Significant)	None beyond embedded and standard mitigation and potential enhancement opportunities (mitigation reference: CH04).	Moderate (significant)	Not required
Impact to the setting of the Scheduled south east Crooksetter Hill cairn (Asset 32).	Moderate (Significant)	None beyond embedded and standard mitigation and potential enhancement opportunities (mitigation reference: CH04).	Moderate (significant)	Not required
Impact to the setting of the Scheduled north west Crooksetter Hill cairn (Asset 35).	Moderate (Significant)	None beyond embedded and standard mitigation and potential enhancement opportunities (mitigation reference: CH04).	Moderate (significant)	Not required