

# Harris to Stornoway 132 kV Overhead Line Replacement

**Environmental Impact Assessment Report:  
Volume 2: Main Report  
October 2022**

**Application for consent under Section 37 of the  
Electricity Act 1989**



**Scottish & Southern  
Electricity Networks**

TRANSMISSION

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## GLOSSARY OF TERMS AND ABBREVIATIONS

Term/Abbreviation	Expanded Term/Definition
132 kV	132 kilo-volt capacity of an electricity power line
ACoW	Archaeological Clerk of Works
ACIfA	Associate of Chartered Institute for Archaeologists
AEP	Annual Exceedance Probability
Aesthetic Aspects	<p>The key aspects of the landscape which contribute to its appearance (previously composition), such as:</p> <ul style="list-style-type: none"> <li>• Scale;</li> <li>• Enclosure;</li> <li>• Diversity;</li> <li>• Texture;</li> <li>• Form;</li> <li>• Line;</li> <li>• Contour;</li> <li>• Balance;</li> <li>• Movement; and</li> <li>• Pattern.</li> </ul>
Alignment	The centre line of an overhead line route, along with the location of key angle structures
Amenity	The natural environment, cultural heritage, landscape, and visual quality. Also includes the impacts of noise and disturbance, for example, on the natural environment experienced
Ancient Woodland	Woodland which has been in continuous existing since before 1750 in Scotland and is important for biodiversity and cultural identity. Ancient semi-natural woodland is Ancient Woodland composed of mainly locally native trees and shrubs that derive from natural seed fall or coppice rather than from planting
Angle Pole	Support structure (pole) which allows a change in direction of the overhead line
AOD	Above Ordnance Datum
AP	Annual Probability
Backclothing	Where elements (such as a Proposed Development) are seen below the skyline/horizon, and against a backdrop, thereby making them less prominent (potentially).
BAP	Biodiversity Action Plan
Baseline	The character of the study area as it exists at the commencement of the assessment process – i.e. prior to the development proposal under consideration.
BBS	Breeding Bird Survey
BGS	British Geological Survey
Blackhouse	A dwelling comprising byre, barn and living quarters, with walls consisting of inner and outer drystone facings with an insulating turf core.

<b>Term/Abbreviation</b>	<b>Expanded Term/Definition</b>
BNG	Biodiversity Net Gain
BoCC	Birds of Conservation Concern
BRP	Bat Roost Potential
CA	Conservation Area
CAR	Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended)
CDM Regulations	Construction (Design and Management) Regulations 2015
CEMP	Construction (or Contract) Environmental Management Plan
Centre Line	The linear connection between the central point of each support structure along the length of the overhead line
CFA	CFA Archaeology Ltd
CIEEM	Chartered Institute of Ecology and Environmental Management
CifA	Chartered Institute for Archaeologists
Circuit	Overhead line or underground cable consisting of multiple conductors, to carry electric current
Clearance cairn	An irregular and unstructured collection of fieldstones which have been removed from arable land or pasture to allow for more effective agriculture and collected into usually a low mound or cairn.
CnES	Comhairle nan Eilean Siar
Conductor	A metallic wire strung from supporting steel lattice or wood structures, or an insulated wire below ground, to carry electric current
Constraints Map	Map showing the location of important resources and receptors that may form constraints to development.
Corridor	A linear area which allows a continuous connection between the defined connection points. The corridor may vary in width along its length; in unconstrained areas it may be many kilometres wide
CoWRP	Control of Woodland Removal Policy
CRM	Collision Risk Model
CTMP	Construction Traffic Management Plan
Cumulative Effects	Effects arising from the additional or combination of developments which are in construction, have been consented or are reasonably foreseeable. May be experienced in combination, concurrently or sequentially.
Designated Landscape	Areas of landscape identified as being of importance at international, national or local levels, either defined by statute or identified in development plans or other documents.
Diversity	Where a variety of qualities or characteristics occur.
DTM	Digital Terrain Model. Computer generated 3-dimensional model based on aerial survey of ground surface (e.g. Ordnance Survey Profile data). Often utilised as a basis for visibility modelling over large areas.
DWPA	Drinking Water Protected Area

<b>Term/Abbreviation</b>	<b>Expanded Term/Definition</b>
EA	Environmental Appraisal
EC	European Commission
EclA	Ecological Impact Assessment
ECoW	Ecological Clerk of Works
ECU	Energy Consents Unit
Effect	The result of an impact on an environmental receptor.
EIA	Environmental Impact Assessment
EIA Regulations	Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017
EIAR	Environmental Impact Assessment Report
EMF	Electric Magnetic Field
EMP	Environmental Management Plan
EnvCoW	Environmental Clerk of Works
EPS	European Protected Species
ESQCR	Electricity Safety, Quality and Continuity Regulations
EU	European Union
Field Pattern	The pattern of hedges and walls that define fields in farmed landscapes.
FLS	Forestry and Land Scotland
FoS	Factors of Safety
GB	Great Britain
GBR	General Binding Rule
GDL	Gardens and Designed Landscapes are defined within Historic Scotland Inventory of Designed Landscapes in Scotland (2012) as “grounds that are consciously laid out for artistic effect”
GEMP	General Environmental Management Plan
GHG	Greenhouse Gas
GIS	Geographical Information System
GLVIA	Guidelines for Landscape and Visual Impact Assessment, Third Edition, published jointly by the Landscape Institute and Institute of Environmental Management and Assessment.
GPP	Guidance for Pollution Prevention
GSP	Grid Supply Point
GWDTE	Groundwater Dependent Terrestrial Ecosystem
ha	Hectare
HER	Historical Environment Record
Heritage Asset	Those parts of the historic environment that have significance and are worthy of consideration in planning matters are referred to as heritage assets. Heritage assets include standing, buried or submerged remains, buildings, parks and gardens and areas, sites

<b>Term/Abbreviation</b>	<b>Expanded Term/Definition</b>
	and landscapes including designated sites and those identified by the local planning authority. World Heritage Sites, Scheduled Monuments, Listed Buildings, protected wreck sites, Inventory Gardens and Designed Landscapes, Inventory Battlefields and Conservation Areas are all heritage assets
HES	Historic Environment Scotland
HGV	Heavy Goods Vehicle
HRA	Habitat Regulations Appraisal
IBA	Important Bird Area
ICNIRP	International Commission on Non-Ionising Radiation Protection
IEF	Important Ecological Features
IEMA	Institute of Environmental Management and Assessment
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.
JNCC	Joint Nature Conservation Committee
Key Characteristics	The elements of the landscape and/or their inter relationship which form the defining components of the landscape.
km	Kilometre
kV	Kilovolt – one thousand volts
Landscape	Human perception of the land conditioned by knowledge and identity with a place.
Landscape Capacity	An area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors. 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	The distinctive and recognisable pattern of the key constituent elements and features of a landscape that makes it distinct from other landscapes and how this is perceived by people. It reflects particular combinations of geology, landform, soils, vegetation, land use and human settlement. It creates the particular sense of place in different areas of the landscape.
Landscape Character Type (LCT)	A landscape type will have broadly similar patterns of geology, landform, soils, vegetation land use, settlement and field pattern discernible in maps and field survey records.
Landscape Classification	A process of sorting the landscape into different types using selected criteria, but without attaching relative values to the different types of landscape.
Landscape Fabric	Physical elements of the landscape or development site.
Landscape Factor	A circumstance or influence contributing to the impression of the landscape (e.g. scale, enclosure, elevation).

<b>Term/Abbreviation</b>	<b>Expanded Term/Definition</b>
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 Effect	The consequence of change in the elements, characteristics, qualities and overall character of the landscape as a result of development. These effects can be beneficial, neutral or adverse.
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 Quality (or Condition)	Based on judgments about the physical state and condition 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.
Landscape Sensitivity (to a specific type of change)	The extent to which a landscape can accept change of a particular type and scale.
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.
LB	Listed Building
LCA	Landscape Character Assessment
LDP	Local Development Plan
LGV	Light Goods Vehicles
LHRSG	Lewis and Harris Raptor Study Group
LNR	Local Nature Reserve
LOD	Limit of Deviation - Limits of Deviation, an area which defines the practical limits within which micro-siting of the OHL infrastructure can occur within the terms of the s37 consent which is to be sought. The purpose of Limits of Deviation is to allow flexibility within a s37 consent for the final micro-siting of individual poles to respond to localised ground conditions, topography, engineering, and environmental constraints
LPA	Local Planning Authority
LTFP	Long Term Forest Plan
LVIA	Landscape and Visual Impact Assessment
m	Metre(s)
m <sup>2</sup>	Square Metres
Magnitude (of change)	A term that combines judgements about the size and scale of the effect, the extent of the area over which occurs, whether it is

Term/Abbreviation	Expanded Term/Definition
	reversible or irreversible and whether it is short or long term in duration.
MBS	Moorland Bird Surveys
MCIEEM	Member of the Chartered Institute of Ecology and Environmental Management
Methodology	The specific approach and techniques used for a given study.
Micrositing	The process of positioning individual structures to avoid localised environmental or technical constraints
Mitigation Measures	Measures including any process, activity or design process to avoid, reduce, remedy or compensate for adverse impacts of a development.
mm	Millimetre
Mph	Miles per hour
MSS	Marine Science Scotland
MW	Megawatt
Natural Factors	<p>Elements of the landscape that have not been altered by human activity, e.g.</p> <ul style="list-style-type: none"> <li>• Geology;</li> <li>• Landform; and</li> <li>• River and drainage pattern.</li> </ul>
NCN	National Cycle Network
NeSTS	New Suite of Transmission Structures
NETS SQSS	National Electricity Transmission System Security and Quality of Supply Standard
NGR	National Grid Reference
NHZ	Natural Heritage Zone
NNR	National Nature Reserve
Noost	A shelter for a boat
NPF3	National Planning Framework 3
NRHE	National Record of Historic Environment
NS	NatureScot - Formerly known as Scottish Natural Heritage, is the public body responsible for Scotland's natural heritage, especially its natural, genetic, and scenic diversity. It advises the Scottish Government and acts as a government agent in the delivery of conservation designations, i.e. national nature reserves, local nature reserves, national parks, Sites of Special Scientific Interest (SSSIs), Special Areas of Conservation, Special Protection Areas, and the national scenic areas
NSA	National Scenic Area
NSR	Non-Statutory Register
NTS	Non-Technical Summary
NVC	National Vegetation Classification



<b>Term/Abbreviation</b>	<b>Expanded Term/Definition</b>
OHFT	Outer Hebrides Fisheries Trust
OHL	Overhead Line
OHMP	Outline Habitat Management Plan
Operational Corridor	The area needed for operational maintenance
OS	Ordnance Survey
PAN	Proposal of Application Notice
PDE	Pre-Development Enquiry
Perception (of Landscape)	The psychology of seeing and possibly attaching value or meaning to the landscape.
Planning application	An application for planning permission under the Town and Country Planning (Scotland) Act 1997, as amended by the Planning etc. (Scotland) Act 2006. It should be noted that consent under Section 37 of the Electricity Act 1989 usually carries with it deemed planning permission from the Scottish Ministers under Section 57 of the Town and Country Planning (Scotland) Act 1997
PLHRA	Peat Landslide Hazard Risk Assessment
PMP	Peatland Management Plan
PPP	Pollution Prevention Plan
Preferred Route	The route option which is considered to represent the optimum balance between the various environmental considerations
Proposed Alignment	The alignment taken forward to consent application. This comprises a defined centre line for the overhead line and includes an indicative support structure (pole) schedule, also specifying access arrangements and any associated construction facilities
Proposed Development	The construction and operation of a 58 kilometre (km) single circuit 132 kV overhead line (OHL), supported by "H" Pole trident poles between the existing Harris Grid Supply Point and the existing Stornoway Substation on Lewis, followed by the dismantling and removal of the existing 132 kV OHL between the same connection points.
Proposed Route	The final route taken forward following stakeholder consultation within which alternative OHL route alignments will be defined and appraised
PWS	Private Water Supply
Quartering	The low hunting flights of owls and harriers where they fly low to the ground very slowly looking for prey
Quernstone	A stone for grinding grain.
Ramsar Site	Wetlands of International Importance designated under the Ramsar Convention.
RBMP	River Basin Management Plan
Receptor	Physical landscape resource, special interest or individual or group experiencing view liable to change as a result of the Proposed Development.
Receptor Location	Location occupied by identified receptors.

<b>Term/Abbreviation</b>	<b>Expanded Term/Definition</b>
Residual Effects	Effect of development after mitigation/embedded mitigation or design proposals are taken into account.
Route	A linear area of approximately 1 km width (although this may be narrower/wider in specific locations in response to identified pinch points / constraints), which provides a continuous connection between defined connection points
Routing Study	The study undertaken to assess the potential environmental impacts of the route options and to identify a preferred route based upon the potential environmental impacts identified
RSPB	Royal Society for the Protection of Birds
RVAA	Residential Visual Amenity Assessment
SAC	Special Area of Conservation - designated under Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (known as - The Habitats Directive)
SM	Scheduled Monument - monuments of national importance which have been afforded legal protection under the Ancient Monuments and Archaeological Areas Act 1979
SBL	Scottish Biodiversity List
Scoping	The process of identifying likely significant effects of a development on the environment and establishing the environmental topics to be assessed as part of the Environmental Impact Assessment, via the scoping process as defined within regulation 12 of the EIA Regulations.
SCT	Seascape Character Types
Section 37 (s37) application	An application for development consent under Section 37 of the Electricity Act 1989
SEPA	Scottish Environment Protection Agency
Setting	Setting is more than the immediate surroundings of a site or building, and may be related to the function or use of a place, or how it was intended to fit into the landscape of townscape, the view from it or how it is seen from areas round about, or areas that are important to the protection of the place, site or building (SPP 2014).
SF	Scottish Forestry
Shieling Hut	Hut or small dwelling, usually situated in upland areas and associated with seasonal grazing practices.
Significance	A measure of importance or gravity of the environmental effect defined by significance criteria specific to the environmental topic.
Significant Effect	An effect which is considered by the assessor to be "significant" in terms of the EIA Regulations which require the identification of significant effects.
Site	The site is defined as the area of land occupied by the Proposed Development, including the OHL, its operational corridor and the area required to accommodate ancillary works.
Skydancing	Hen harrier courtship behaviour, where the male and female fly in unison and mirror behaviours

<b>Term/Abbreviation</b>	<b>Expanded Term/Definition</b>
Skylining	The Proposed Development (or aspects of it) would be seen on the skyline. The contrast between the Proposed Development and the sky would generally render the Proposed Development more visible/prominent in views than if it were backclothed by topography.
SLVIA	Seascape, Landscape and Visual Impact Assessment
SM	Scheduled Monument
SNH	Scottish Natural Heritage (now NatureScot)
SPA	Special Protection Area – designated under Directive 2009/147/EC on the conservation of wild birds (the Birds Directive)
SPP	Species Protection Plan
SRMS	Scottish Raptor Monitoring Scheme
SSEN Transmission	Scottish and Southern Electricity Networks Transmission
SSSI	Site of Special Scientific Interest
Stakeholders	Organisations and individuals who could affect or could potentially be affected by the Proposed Development
SuDS	Sustainable Drainage Systems
TA	Technical Appendix
TMP	Transport Management Plan
TN	Target Note
Transient View	A view which obtained momentarily, as part of a sequence of views, e.g. from a car travelling along a road.
UK	United Kingdom
UKCP	UK Climate Projections
UKFSG	UK Forestry Standards Guidelines
Viewpoint Sensitivity	The extent to which a view would be altered by change of a particular type and scale, assessed in relation to the following: <ul style="list-style-type: none"> <li>• Location and land use (receptor activity) at the viewpoint or context of the view;</li> <li>• Landscape character and quality at the viewpoint;</li> <li>• Landscape character and quality of the intervening landscape; and</li> <li>• Importance of the view (which may be determined with respect to its popularity or number of affected people, its appearance in guidebooks, on tourist maps and the facilities provided for its enjoyment and references to it in literature and/or art.</li> </ul>
Viewshadow	An area affording no visibility of the development due to the screening effect intervening structures, topography or vegetation.
Viewshed	The extent of potential visibility to or from a specific area or feature.
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	A particular composition of landscape elements that contribute to a view, or views.

<b>Term/Abbreviation</b>	<b>Expanded Term/Definition</b>
Visual Effect	The consequence of change in the appearance of the landscape as a result of development, which may be beneficial or adverse.
Visualisation	A computer simulation, photomontage or other techniques illustrating the predicted appearance of a development from a known location. Presented either as a wireline image (outline of the development) or as a photomontage which merges a rendered version of the development into a photograph of the view/landscape.
Volts	The international unit of electric potential and electromotive force
VP	Viewpoint (relating to Landscape and Visual)
VP	Vantage Point (relating to Ornithology)
Wayleave	A voluntary agreement entered between a landowner upon whose land an overhead line is to be constructed and SSEN Transmission.
WFD	Water Framework Directive
Windthrow	Windthrow refers to trees uprooted by wind.
Wireline	A computer-generated line drawing of the DTM (digital terrain model) and the Proposed Development from a known location.
WLA	Wild Land Areas - Those areas comprising the greatest and most extensive areas of wild characteristics within Scotland, as classified by SNH (2014)
WSI	Written Scheme of Investigation
WTW	Water Treatment Works
ZOI	Zone of Influence
ZTV	Zone of Theoretical Visibility. The area predicted to have views of a proposed development on the basis of a digital terrain model or digital surface model, which may/may not take account of landcover features. Also known as a Viewshed.

## DIRECTORY OF GAELIC/ENGLISH PLACE NAMES

English Name	Gaelic Name
Ardhasaig	Aird Asaig
Ardvourlie	Aird a Mhulaidh
Arivruaich	Airidh a Bhruaich
Balallan	Baile Ailein
Bowglass	Bogha Glas
Caw	Cadha
Diraclett	Direcleit
Drinishader	Drinisiadar
Kandibig	Ceann Dibig
Laxay	Lacasaidh
Loch Seaforth	Loch Shiophoirt
Maraig	Maaruig
River Laxay	Abhainn Lacasaidh
Seaforth Island	Eillean Shiophoirt
Stornoway	Steornabhagh
Stornoway Bay	Cala Steornabhagh
Tarbert	An Tairbert

# 1. INTRODUCTION

## 1.1 Overview of Proposed Development

- 1.1.1 This Environmental Impact Assessment Report (EIAR) has been prepared by Ramboll UK Limited (Ramboll) on behalf of Scottish Hydro Electric Transmission plc (the Applicant) who, operating and known as Scottish and Southern Electricity Networks Transmission (SSEN Transmission), owns, operates, maintains and develops the high voltage electricity transmission system in the north of Scotland and remote islands. This EIAR accompanies the Applicant's application for consent under Section 37 (s37) of the Electricity Act 1989, as amended.
- 1.1.2 The Applicant is proposing to construct and operate a single circuit 132 kV overhead line (OHL), supported by trident H poles between the existing Harris Grid Supply Point (hereafter 'Harris GSP'), approximately 6 km south of Tarbert, Harris, and an existing substation on Lewis (hereafter 'Stornoway Substation'), approximately 3 km south of Stornoway, a route of approximately 58 km (described hereafter as the 'Proposed Development'). The location of the Proposed Development is shown in **Figure 1.1: Location Plan (EIAR Volume 3a)**.
- 1.1.3 The scope of this s37 consent application is limited to construction and operation of the OHL. The Applicant is also seeking deemed planning permission under Section 57(2) of the Town and Country Planning (Scotland) Act 1997, as amended, for the following ancillary works:
- vegetation clearance along the route of the OHL for the lifetime of the Proposed Development to comply with the Electricity Safety, Quality and Continuity Regulations (ESQCR) 2002;
  - upgrade existing or establish new junction bellmouths;
  - establishment of temporary accesses for the construction of the OHL;
  - measures to protect road and other public/private crossings during construction; and
  - dismantling of the existing OHL.
- 1.1.4 The Proposed Development would not have a fixed operational life. It is assumed that the Proposed Development will be operational for 40 years or more. The effects associated with the construction phase can be considered to be representative of worst-case decommissioning effects, and therefore no separate assessment is undertaken as part of the EIAR.

## 1.2 Project Need

- 1.2.1 The primary requirement for the Proposed Development is to address the condition of the existing Harris-Stornoway 132 kV OHL connection, with a secondary requirement to improve network resilience. The Proposed Development would also support the Applicant's goal of a one third reduction in greenhouse gas emissions, through the reduced need for diesel generation in the Western Isles due to unplanned outages. The requirement is to construct a trident H pole 132 kV OHL between Harris GSP and Stornoway Substation, to replace the existing single pole trident line.

## 1.3 Background of Proposed Development

- 1.3.1 A combined corridor and route selection exercise (Stage 1 and 2) was completed identifying a Preferred Route Option between the Harris GSP and the Stornoway Substation, with public consultation initiated in September-October 2021.
- 1.3.2 An alignment selection exercise (Stage 3) was subsequently completed, and a Preferred Alignment was consulted on in January and February 2022. Further public consultation was undertaken in June 2022 to confirm the Proposed Alignment, which is now being taken forward to the consenting process (Stage 4) and forms the Proposed Development for which consent is being sought (**Figure 2.1: Proposed Development, EIAR Volume 3a**).
- 1.3.3 Details of all consultation documents can be found on the Applicant's project website: <https://www.ssen-transmission.co.uk/projects/harris-stornoway-132kv-ohl/>

## 1.4 Legislative Requirements

- 1.4.1 An application for consent for the Proposed Development will be made to the Scottish Ministers under section 37 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 the Proposed Development involves the construction of an OHL with a voltage of 132 kV, it is categorised under paragraph 2(a) of Schedule 2 of the *Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017* (the 'EIA Regulations')<sup>1</sup>. An official request for a Screening Opinion was not made to the Scottish Ministers. However, considering the potential for likely significant effects on the environment by virtue of factors such as its nature, size, or location, a voluntary Environmental Impact Assessment Report (EIAR) has been prepared in support of the s37 application.
- 1.4.2 A request for a Scoping Opinion was made to the Scottish Ministers under Regulation 12 of the EIA Regulations in May 2022. A Scoping Report (**Appendix 4.1: Scoping Report, EIAR Volume 4**) was submitted to support the request, which sought input from the Scottish Government's Energy Consents Unit (ECU), and statutory and non-statutory consultees regarding the information to be provided within this EIAR.
- 1.4.3 The Scoping Opinion of the Scottish Ministers was issued on 11 July 2022 confirming the scope of the EIAR. Further details of this are contained in **Chapter 4: EIA Consultation and Scope (EIAR Volume 2)** and the accompanying appendices.

## 1.5 Purpose of the EIAR

- 1.5.1 The purpose of this EIAR is to present information on the identification and assessment of the likely significant beneficial and adverse environmental effects of the Proposed Development, and the identification of appropriate mitigation measures to avoid, reduce or offset adverse effects as well as enhancement measures that could result in beneficial effects. The EIAR has been prepared to meet the requirements of Schedule 4 (Information for Inclusion in EIARs)<sup>2</sup> of both the EIA Regulations and the Institute of Environmental Management and Assessment (IEMA) Quality Mark Criteria. The EIAR also takes into account relevant guidance set out in the Scottish Government Planning Advice Note (PAN)<sup>3</sup>, which emphasises the importance of achieving a proportionate EIA scope, focussed on the likely significant effects. The EIAR has been prepared by competent experts, details of which are provided in **Appendix 1.1 (EIAR Volume 4)**.
- 1.5.2 Further details of the statutory requirements for EIA, as well as the EIA approach and methodology, are set out in **Chapter 5: Methodology (EIAR Volume 2)**.

## 1.6 EIAR Structure

- 1.6.1 The EIAR comprises five volumes:
- Volume 1: Non-Technical Summary (NTS);
  - Volume 2: Main Report;
  - Volume 3a: Figures;
  - Volume 3b: Visual Representations;
  - Volume 4: Technical Appendices; and
  - Volume 5: Confidential Appendices.
- 1.6.2 Additional documentation that will be submitted with this application includes:
- s37 application (the content of the application as set out in **Chapter 2: Description of the Proposed Development, EIAR Volume 2**);

<sup>1</sup> <https://www.legislation.gov.uk/ssi/2017/101/contents/made>

<sup>2</sup> Schedule 4 of the EIA regulations determine what information is required to be included in the Environmental Impact Assessment Report. Schedule 4 of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017: <https://www.legislation.gov.uk/ssi/2017/101/schedule/4/made>

<sup>3</sup> Scottish Government, (2013). Planning Advice Note 1/2013: Environmental Impact Assessment. Available at: <https://www.gov.scot/publications/planning-advice-note-1-2013-environmental-impact-assessment/> [Accessed July 2022].

- Cover letter;
- Planning Statement;
- Design & Access Statement; and
- Pre-Application Consultation Report: Harris to Stornoway 132 kV Overhead Line Replacement Report on Consultation and Routeing Decisions 2022.

## 1.7 Notifications

- 1.7.1 Notice will be served to the relevant planning authorities, in this case Comhairle nan Eilean Siar (CnES) of the application to the Scottish Ministers for consent under s37 of the Electricity Act.
- 1.7.2 In accordance with the *Electricity (Applications for Consent) Regulations 1990*, and Regulation 14 of the EIA Regulations, the application and this EIAR will be advertised in the following newspapers:
- The Stornoway Gazette; and
  - The Edinburgh Gazette.
- 1.7.3 The s37 application, including this EIAR and associated documents, will be available for viewing at the following public locations:
- Stornoway Library, 13-19 Cromwell Street, Stornoway, HS1 2DA.
  - Kinloch Community Hub, Kinloch Historical Society, Community Hub, Balallan, Isle of Lewis HS2 9PN.
  - Tarbert Community Library, Sir E. Scott School, Tarbert, Isle of Harris, HS3 3BG.
- 1.7.4 Electronic versions of the application, including this EIAR are available to download from the Applicant's website: <https://www.ssen-transmission.co.uk/projects/harris-stornoway-132kv-ohl/>, and through the Scottish Government energy consents portal<sup>4</sup>.
- 1.7.5 The EIAR is available in other formats if required. For details, including costs, please contact:
- Post: Lisa Marchi, Scottish and Southern Electricity Networks, 10 Henderson Road, Inverness, IV1 1SN
  - Email: [lisa.marchi@sse.com](mailto:lisa.marchi@sse.com)
  - Phone: 07825 015 507

## 1.8 Comments

- 1.8.1 Any representations on the s37 consent application may be submitted via:
- The ECU website: [www.energyconsents.scot/Register.aspx](http://www.energyconsents.scot/Register.aspx);
  - By email to the ECU mailbox at [representations@gov.scot](mailto:representations@gov.scot); or
  - By post to the Scottish Government, Energy Consents Unit, 4th Floor, Atlantic Quay, 150 Broomielaw, Glasgow, G2 8LU.
- 1.8.2 Written or emailed representations should be dated, clearly stating the name (in block capitals), full return email and postal address of those making representations, identify the Proposed Development (Harris to Stornoway 132 kV Overhead Line Replacement) and specify the grounds for representation. Only representations sent by email to [representations@gov.scot](mailto:representations@gov.scot) will receive acknowledgement. All representations should be received by the deadline in the notice, although Ministers may consider representations received after this date.
- 1.8.3 The validation date will be available on the ECU website at [www.energyconsents.scot/Register.aspx](http://www.energyconsents.scot/Register.aspx)

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<sup>4</sup> <https://www.energyconsents.scot/>



## 2. DESCRIPTION OF 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. The chapter provides:

- a description of the location of the Proposed Development;
- a description of the physical characteristics of the Proposed Development, including the land-use requirements during construction and operational phases;
- a description of the main characteristics of the operational phase of the development; and
- an estimate, by type and quantity of the expected residues and emissions produced during construction and operation phases.

2.1.2 The description of the main characteristics, including expected residues and emissions of the operational phase is made by reference to the typical activities associated with the operation of the Proposed Development. It is noted that there are no 'production processes' associated with this type of development and therefore there would be no ongoing operational use of energy, materials or natural resources.

2.1.3 The expected residues and emissions associated with the construction phase are described through reference to the typical activities associated with the construction and commissioning of the Proposed Development, as well as reinstatement of construction sites. **Table 2.4** provides a summary of the anticipated residues and emissions from the construction and operational stages of the Proposed Development.

2.1.4 This chapter is supported by the following Figures and Technical Appendices:

- Volume 3a: Figures
  - Figure 1.1: Location Plan and Overview;
  - Figure 2.1: Proposed Development;
  - Figure 2.2: Land Take and Forestry Removal; and
  - Figure 2.3: Access Strategy.
- Volume 4: Technical Appendices
  - Technical Appendix 2.1: Detailed Pole Schedule;
  - Technical Appendix 2.2: SSEN Transmission General Environmental Management Plans (GEMP);
  - Technical Appendix 2.3: SSEN Transmission Species Protection Plans (SPP); and
  - Technical Appendix 2.4: Woodland Plans.

2.1.5 Details of the project need are provided in Section 1.2 of **Chapter 1: Introduction (EIAR Volume 2)**, and discussion of the routeing process can be found within **Chapter 3: Consideration of Alternatives (EIAR Volume 2)**.

### 2.2 The Location of the Proposed Development

2.2.1 The Proposed Development would link the existing Harris grid supply point (GSP), approximately 6 km south of Tarbert, and the existing Stornoway Substation, approximately 3 km south of Stornoway (**Figure 1.1: Location Plan and Overview, EIAR Volume 3a**).

2.2.2 Starting from the Harris GSP, the Proposed Alignment runs north across rocky open ground to Tarbert on the western side of the A859. It crosses the A859 in Tarbert and follows the road round to Ardhasaig in close proximity to the coastline. From Ardhasaig, it follows the A859 north eastwards across mountainous terrain towards Ardvourlie, crossing the road in six locations and following a similar alignment to the existing 132 kV overhead line (OHL). From the small area of woodland at Ardvourlie, it continues north, crossing Aline Community

Woodland and passing to the north of Arivruaich, Balallan and Laxay. It crosses between numerous lochs/lochans and watercourses, remaining on the western side of the A859 until it reaches Stornoway Substation.

2.2.3 The indicative locations and heights of each pole structure are provided in **Technical Appendix 2.1: Detailed Pole Schedule (EIAR Volume 4)**.

### 2.3 Characteristics of the Proposed Development

2.3.1 Section 37 consent is being sought for the undernoted development, as illustrated in **Figure 2.1: Proposed Development (EIAR Volume 3a)**:

- Construction and operation of a c.58 km single circuit 132 kV OHL, supported by trident H poles between the existing Harris GSP (Grid Reference NG 1350 9425) and the existing Stornoway Substation (Grid Reference NB 4019 3234).

2.3.2 Other works would be required to facilitate construction and operation of the Proposed Development. The Applicant is seeking deemed planning permission under Section 57(2) of the Town and Country Planning (Scotland) Act 1997, for the following ancillary works:

- vegetation clearance along the route of the OHL for the lifetime of the Proposed Development to comply with the Electricity Safety, Quality and Continuity Regulations (ESQCR) 2002<sup>1</sup>;
- upgrade existing or establish new junction bellmouths;
- establishment of temporary access, for the construction of the OHL;
- measures to protect road and other public/private crossings during construction; and
- dismantling of the existing OHL.

2.3.3 Temporary compounds and laydown areas would also be required to facilitate the construction of the Proposed Development. However, the locations of these compounds would be determined by the Principal Contractor once they are appointed. Once these area(s) are identified, the Principal Contractor would consult with the Local Planning Authority, and any other relevant statutory authority, to ascertain whether statutory permissions would be required. Where statutory permissions are required, the Principal Contractor would be responsible for securing all permissions necessary to operate these sites.

2.3.4 The Proposed Development would replace the existing 132 kV OHL which has reached the end of its asset life and which would be dismantled and removed as part of the project works.

#### Indicative OHL Design

2.3.5 The Proposed Development would comprise the construction of a new 132 kV OHL supported by low-profile trident H poles. Low-profile steel trident H poles may be used in certain locations to achieve long spans. The design of the low-profile steel poles is still to be finalised; however, it is envisaged that they would look very similar to the wood pole trident, the only marked difference would be the replacement of the wood poles with steel poles.

2.3.6 The spacing between the trident H poles would vary depending on topography, altitude and land use, with maximum span length of 120 m and an average span of 80 m. The trident H poles would be a maximum height of 18 m above ground level, with a typical average pole height of 10.5 m above ground level. For comparison, the wood poles belonging to the existing 132 kV OHL that the proposed OHL would replace vary in height from 10 m to 16 m, being an average of 12 m.

2.3.7 The proposed OHL would comprise a combination of suspension poles, angle / tension poles, failure containment poles and terminal poles.

2.3.8 **Plate 2.1** provides an image of a typical trident H pole.

<sup>1</sup> <https://www.legislation.gov.uk/ukxi/2002/2665/contents/made>

**Plate 2.1: Typical trident H pole design**



- 2.3.9 The Proposed Alignment has been determined based on the environmental assessments, engineering analysis, cost considerations and stakeholder consultation undertaken to date. The detailed pole schedule (for the purposes of the application for consent) is located in **Appendix 2.1: Detailed Pole Schedule (EIAR Volume 4)**.
- 2.3.10 The Proposed Development would affect the land use covering 218.5 ha of land as detailed in **Table 2.1** of this chapter and presented in **Figure 2.2: Land Take and Forestry Removal (EIAR Volume 3a)**.

#### Limit of Deviation

- 2.3.11 Following the grant of consent by the Scottish Ministers, an investigation of sub-surface and geotechnical conditions at proposed pole locations would be undertaken which may result in the requirement for additional adjustments (micrositing) in the pole locations or heights. There may also be a need to adjust the alignment to avoid any unexpected environmental sensitivities, such as protected species or unidentified cultural heritage features. To strike a balance between providing certainty between the location of the Proposed Development and any environmental impacts, and the need for some flexibility, horizontal Limits of Deviation (LOD) have been defined within which the Proposed Development would be constructed. The application of the LOD would be limited to variations that do not result in adverse change to the level of significance of effects on the environment as detailed in this EIAR. Any utilisation of the LOD would be evaluated against the level of significance of effects reported in the EIAR. Should the evaluation identify an adverse change to the level of significance identified consultation would be carried out with the ECU (and any relevant statutory consultees) for approval of the proposed change.
- 2.3.12 Consideration was given to the following principles in defining the LOD for the Proposed Development:

- presumption towards the optimum LOD whilst providing flexibility for micrositing during the detailed design phase;
- presumption towards avoiding sensitive environmental features; and
- presumption towards avoiding residential properties.

2.3.13 The following parameters have been applied to the Proposed Development:

- a horizontal LOD of 100 m width (50 m either side of the OHL) where no specific environmental constraints have been identified;
- a horizontal LOD of 60 m width (30 m either side of the OHL) where the OHL passes through woodland; and
- a vertical LOD set at a maximum of 18 m (height) above ground level (agl).

2.3.14 The horizontal LOD is illustrated on **Figure 2.1: Proposed Development (EIAR Volume 3a)**.

## 2.4 Land Take

### Permanent Land Take

2.4.1 Within the Site (defined as the area of land occupied by the Proposed Development, including the OHL, its operational corridor and the area required to accommodate ancillary works), the permanent land take would be limited to the operational corridor, which would be a 35 m corridor (15 m either side of the structure width (5 m)), increasing to a 60 m corridor in areas of woodland.

2.4.2 The Proposed Development would require the use of 11.5 km of existing track. None of this track would require upgrading but would be maintained and returned to original condition upon reinstatement. The total permanent land take area for the existing tracks would be approximately 5.2 ha.

### Temporary Land Take

2.4.3 For the purposes of the EIA, it has been assumed that individual pole excavations and associated construction activities would require a working area of approximately 0.0625 ha. The exact dimensions of the working area around each pole would be confirmed following micrositing.

### Summary of Temporary and Permanent Land Take

2.4.4 The area of temporary and permanent land take associated with the Proposed Development is presented in Table 2.1.

<b>Table 2.1: Summary of Temporary and Permanent Land Take</b>		
<b>Project Construction Element</b>	<b>Temporary (ha)</b>	<b>Permanent (ha)</b>
Operational Corridor (35 m) (felling: 60 m corridor in areas of woodland)	0	203.3
Temporary construction working areas (25 m x 25 m)	0.0625	0
Access tracks (existing maintained)	0	5.2
<b>TOTAL (ha)</b>	<b>0.0625</b>	<b>218.5</b>

### Management Felling

2.4.5 In addition to the permanent and temporary land take area described above, there would also be an area of management felling outside of the operational corridor equating to 6.2 ha, as detailed in **Technical Appendix 2.4 (EIAR Volume 4)**.

## 2.5 Construction and Activities Phasing

- 2.5.1 It is anticipated that the construction of the Proposed Development would commence in February 2024 (subject to consents and approvals being granted). A provisional construction period of 30 months is anticipated, with full energisation of the project scheduled for March 2026. Works to dismantle the existing 132 kV OHL are anticipated to be completed by August 2026.
- 2.5.2 The construction programme would comprise four key phases shown in the indicative construction programme in **Table 2.2.** and discussed in the sections below.
- 2.5.3 The detailed construction phasing and programme would be subject to change as the design progresses and also following the grant of the necessary consents, and wayleaves being obtained.

**Table 2.2: Indicative Construction Programme**

Task	Months																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Forestry Felling	█	█	█	█																											
Site Mobilisation			█	█	█																										
Pole Installation Works					█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█		
OHL Outage Connection Works									█				█								█			█					█		
Site Reinstatement																				█	█	█	█	█	█	█	█	█	█	█	
Existing OHL Demolition/ Dismantling																									█	█	█	█	█	█	█

## Phase 1 – Enabling Works

### *Existing Network Diversions*

- 2.5.4 To enable the construction of the Proposed Development, some permanent rationalisation of the existing electricity distribution network circuits belonging to Scottish Hydro Electric Power Distribution plc (known as Scottish and Southern Electricity Networks Distribution (SSEN Distribution)) would be necessary. This would take the form of either undergrounding sections of the distribution lines or moving them to a location where they would not interfere with the construction of the new line. At this stage, exact details for the rationalisation are still to be confirmed by SSEN Distribution who would submit applications for any consents that are necessary.

### *Vegetation Management and Forestry Clearance*

- 2.5.5 The Proposed Development navigates areas of woodland and in these areas a clear Operational Corridor would be required to enable the safe operation and maintenance of the OHL. The width of this corridor would be variable depending on the nature of the woodland; however, it is assumed an average corridor of 60 m would be required (30 m either side of the alignment). The width of the Operational Corridor is dependent on the mature growth height of the trees and topography adjacent to the OHL. In addition, vegetation clearance would be required for the construction of the OHL. The total area of woodland removal is 22.5 ha (**Figure 2.2: Land Take and Forestry Removal, EIAR Volume 3a** and **Technical Appendix 2.4: Woodland Plans, EIAR Volume 4**).
- 2.5.6 After felling, any non-commercially viable forest material would be dealt with in a way that delivers the best practicable environmental outcome and is compliant with waste regulations including LDP policy EI 4: Waste Management<sup>2</sup>.

### *Road Improvements and Access*

- 2.5.7 No permanent access tracks are required.
- 2.5.8 Access routes that could service the construction and operation of the Proposed Development, have been identified and are shown in **Figure 2.3: Access Strategy (EIAR Volume 3a)**. These routes have considered the need to access both the Proposed Alignment for construction and the existing OHL for dismantling.
- 2.5.9 Construction access would be from the A859 and is expected to use a mix of existing tracks and lower impact access solutions over open ground to gain access to the Operational Corridor. Preference would be given to the use of low ground pressure vehicles and trackway panels in boggy / soft ground areas to reduce any damage to, and compaction of, the ground. There is potential for proposed temporary access tracks to be required; however, the use of these accesses would be kept to a minimum to minimise disruption to habitats along the route. In certain situations, helicopters may be used for pole delivery to the point of installation. All sections of tracks used for construction are proposed as temporary in nature and would be removed following completion of the Proposed Development, with land reinstated to as close to its existing condition, as reasonably possible. The use of stone access tracks is considered unlikely to be necessary and would be kept to a minimum.
- 2.5.10 Any new constructed tracks would be constructed to good practice working methods<sup>3,4,5,6,7,8</sup> with watercourse crossings designed and constructed to comply with legislation set out in The Water Environment (Controlled Activities) (Scotland) Regulations 2011, as amended.

<sup>2</sup> Comhairle nan Eilean Siar (Nov 2018) *Outer Hebrides Local Development Plan*, URL: <https://www.cne-siar.gov.uk/media/12598/ohldp-adopted-plan.pdf>

<sup>3</sup> Forestry Commission (2011). *Forests and Water. UK Forestry Standard Guidelines*. Forestry Commission, Edinburgh. i-iv + 1– pp.

<sup>4</sup> Forestry Commission (2014) *Forest Commission Road Specification*, April 2014, URL: <http://www.forestry.gov.uk/forestry/infnd-6emgrz>

<sup>5</sup> Scottish Natural Heritage (2015) *Good Practice During Wind Farm Construction*, A joint publication by Scottish Renewables, SNH, SEPA, Forestry Commission Scotland and Historic Scotland, 3rd Edition.

<sup>6</sup> CIRIA Publications 2006: *Control of Water Pollution from Linear Construction Projects. Site Guide (C649)*;

<sup>7</sup> Scottish Natural Heritage (2013) *Constructed Tracks in the Scottish Uplands*, 2nd Edition;

<sup>8</sup> Forestry Commission Scotland and Scottish Natural Heritage (2010) *Floating Roads on Peat*.

### *Site Compounds*

- 2.5.11 It is anticipated that a single main construction compound would be required, with a safe area for parking away from the public road the location of which would be confirmed by the Principal Contractor. Temporary construction compound locations may be required along the Operational Corridor, the location of which would be determined through ongoing design works.
- 2.5.12 The main construction compound would comprise site offices, welfare facilities, parking and limited materials storage. The Principal Contractor would obtain all the necessary consents and permits once the precise location of all temporary construction compounds are decided upon. The temporary construction compounds would have workforce welfare facilities with material storage and handling areas.
- 2.5.13 Site compounds and storage areas would be kept to the minimum necessary for safe implementation of the works. On-site storage of oil and fuels would be avoided if possible but where on-site storage is required, the volumes to be stored would be minimised and stored in accordance with all applicable legislation and good practice.

### **Phase 2 – OHL Construction**

- 2.5.14 The following process would be followed for trident H pole erection:
- Turf and topsoil would be removed using an excavator; these would be removed together to retain the turf root system and placed to one side for later reinstatement;
  - A hole would be excavated to allow the pole brace block and/ or steel foundation braces to be positioned in place. A typical pole excavation is 3 m<sup>2</sup> x 2.5 m deep;
  - In areas of soft ground and/or very deep peat where firm ground cannot be found, 'bog shoes' may be added to the pole foundations to maximise stability of the structure by floating the structure with wider foundations.
  - The poles would be erected using normal agricultural machinery such as a digger with a lifting arm;
  - The excavator would then hoist the assembled structure into position and, once the structure has been braced in position, the excavation would be backfilled;
  - The hole would be backfilled with soil replaced in reverse order to the order of excavation.
  - Backfilling would be progressed in layers of approximately 300 – 400 mm deep, with stone hardcore added as required around foundation blocks to ensure adequate compaction and suitable geotechnical conditions are maintained between each layer.
  - When replacing the topsoil/turf around the pole it would be left slightly proud of ground level (approximately 150/ 300 mm) to allow for the excavation to naturally settle further through time.
  - Once all the poles are erected the conductor would be strung between the poles in sections and brought up to full tension. Where the line is to cross major roads, temporary scaffolding either side of the road with netting between would be erected. This would enable the conductors to be pulled while presenting no risk to the road users below.
- 2.5.15 It is anticipated that all material excavated for the installation of the poles and stays would be used in backfilling the excavations.

### **Phase 3 – OHL Commissioning**

- 2.5.16 The OHL and support poles would then be subject to an inspection and snagging process. This allows the Contractor and the Applicant to check that the works have been built to specification and are fit to energise. The Proposed Development would also go through a commissioning procedure for the switchgear, communications, and protection controls through the substation at Stornoway. The circuits would then be energised.



#### Phase 4 – Reinstatement

- 2.5.17 Following commissioning, all temporary works areas would be reinstated. Reinstatement would form part of the contract obligations for the Principal Contractor and would include the removal of all temporary access tracks, all work sites around the pole locations and the re-vegetation of all construction compounds.
- 2.5.18 Reinstatement principles would be in accordance with the Applicant's General Environmental Management Plans (GEMPs) and best practice measures, as well as mitigation proposals recommended in this EIAR. These would be incorporated into the Construction Environmental Management Plan (CEMP).

##### *Reinstatement of Pole Sites*

- 2.5.19 Soil would be stored within the working area for each pole during construction. Topsoil removed to enable the installation of the poles would be temporarily stockpiled in bunds within the working area, with stripped turves stored on top of the bunds.
- 2.5.20 Reinstatement would involve replacement of topsoil then turves replaced vegetation side up. Where there are insufficient turves the ground would be allowed to vegetate naturally, although some seeding may be required to stabilise sites and prevent erosion, or where landowner requirements dictate otherwise.

##### *Reinstatement of Construction Compounds*

- 2.5.21 At the end of construction all materials, buildings, and temporary compounds would be removed. Where required the land would be regraded with subsoil put down first, then topsoil with turves replaced vegetation side up. Where there are insufficient turves the ground would be allowed to vegetate naturally, although some seeding may be required to stabilise sites and prevent erosion, or where landowner requirements dictate otherwise.

##### *Dismantling of Existing Infrastructure*

- 2.5.22 The existing 132 kV OHL from Harris GSP to Stornoway Substation would be decommissioned and removed as part of the wider works. The works would include the dismantling and removal of all conductors, earthwires, fittings, insulator sets and poles. Foundations for the supports would be left in place but the top portion of the foundations would be cut off and disposed to no less than 1 m below ground level where practical. These works would be managed in line with the requirements set out in a project specific CEMP.
- 2.5.23 All infrastructure would be removed from site in accordance with relevant waste regulations (with a preference given to reuse and recycling) and the land reinstated to landowner requirements. The dismantling works would be undertaken by tracked excavators and off road vehicles; it is not anticipated that there would be any requirement for laydown areas. In areas of soft ground, temporary access panels would be utilised.
- 2.5.24 In the event the dismantling operations require significant engineering works further consultation would be undertaken with the planning authority, and any other relevant statutory authority, to ascertain whether statutory permissions are required.

#### 2.6 Construction Employment and Hours of Work

- 2.6.1 The Applicant takes community responsibilities seriously. The delivery of a major programme of capital investment provides the opportunity to maximise support of local communities.
- 2.6.2 Employment of construction staff would be the responsibility of the Principal Contractor but the Applicant would encourage the Principal Contractor to make use of suitable labour and resources from areas local to the location of the works, where possible.
- 2.6.3 It is envisaged that there would be a number of separate teams working at the same time at different locations within the Proposed Development corridor. The resource levels would be dependent on the final construction sequence and would be determined by the Principal Contractor.
- 2.6.4 Construction working is likely to be during daytime periods only. Working hours are currently anticipated between approximately 07:00 to 19.00 Monday to Friday and 07.00 to 17:00 on Saturdays during the months of April to

September and 07:30 to 17:00 Monday to Friday and 07:30 to 13:00 on Saturdays during the months of October to March (inclusive). Any changes to these hours, as well as any out of hours working, would be agreed in advance with CnES.

## 2.7 Construction Traffic and Plant

- 2.7.1 Construction of the Proposed Development would give rise to regular numbers of staff transport movements, with small work crews travelling to work site areas. It is anticipated that the Principal Contractor(s) would identify a main compound, with a safe area for parking.
- 2.7.2 Vehicle movements would be required to upgrade existing access tracks; deliver the foundation and pole components and conductor materials to site; and deliver and collect materials and construction plant from the main site compound and to individual pole locations.
- 2.7.3 The successful Principal Contractor(s) would determine where access is required, and for which items of plant, and prepare a Construction Traffic Management Plans (CTMP) in consultation with the Applicant and CnES. The CTMP would describe all mitigation and signage measures that are proposed on the public road accesses based on access maps and subsequent site assessments.
- 2.7.4 Temporary traffic management may be required at some locations (e.g. to facilitate construction material deliveries). For minor tracks and other crossings, the installation of appropriate warning signs and provision of staff with stop / go boards to control any passing traffic may be adequate. Traffic Management requirements would be identified within the CTMP and agreed with CnES.
- 2.7.5 Construction traffic would comprise construction staff in private cars, and HGVs/LGVs carrying construction materials, personnel and plant equipment. The source of construction materials is unconfirmed at this stage; however, construction traffic (HGVs and staff) would approach the site from both north and south via the A859 .
- 2.7.6 An indicative 30-month construction programme established that the Proposed Development would generate the most construction activity during month 25 of the construction programme and results in 50 daily movements. Of these, 30 movements are associated with HGV moving equipment to mobilise sections of the works. The remaining 20 movements are associated with construction staff arriving at and departing from the Site. Further details on vehicle movements are provided in **Chapter 11: Traffic and Transport (EIAR Volume 2)**.

## 2.8 Standard Mitigation and Working Methods During Construction

### Construction Environmental Management Plan

- 2.8.1 A CEMP would be developed and implemented by the Principal Contractor(s). This document will detail how the Principal Contractor(s) would manage the site in accordance with all commitments and mitigation detailed in this EIAR, statutory consents and authorisations, and industry best practice and guidance.
- 2.8.2 The CEMP would also reference the Applicant's GEMPs (**Technical Appendix 2.2 (EIAR Volume 4)**) and Species Protection Plans (SPPs) (**Technical Appendix 2.3 (EIAR Volume 4)**). The implementation of the CEMP would be managed on-site by a suitably qualified and experienced Environmental Clerk of Works (EnvCoW), with support from other environmental professionals as required.
- 2.8.3 **Chapter 13: Schedule of Environmental Mitigation (EIAR Volume 2)** states all mitigation measures included in this report.

### General Environmental Management Plans

- 2.8.4 GEMPs have been developed by the Applicant and all works would be carried out in accordance with these. Details of the relevant GEMPs are provided in **Technical Appendix 2.2 (EIAR Volume 4)**.

### Species Protection Plans

- 2.8.5 Species Protection Plans (SPPs) have been developed by the Applicant and have been agreed with NatureScot. All works would be carried out in accordance with the SPPs. Details of the relevant SPPs are provided in **Technical Appendix 2.3 (EIAR Volume 4)**.

### Watercourse Crossings

- 2.8.6 **Technical Appendix 10.4: Water Crossing Assessment (EIAR Volume 4)** includes information on the management of construction work where there would be interaction with watercourses. A total of 34 potential watercourse crossing points (**Technical Appendix 10.4, Figure 10.4.1 (EIAR Volume 4)**) have been identified for the proposed access routes, of which 23 are existing crossings.

### Peat Management

- 2.8.7 **Technical Appendix 10.2: 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.
- 2.8.8 **Technical Appendix 10.3: 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 implemented during construction to seek to avoid adverse effects associated with peat instability.

### Mitigation through Design

- 2.8.9 The design of the Proposed Alignment for the Proposed Development has responded where possible, to comments and concerns raised during the consultation process (**Chapter 4: EIA Consultation and Scoping, EIAR Volume 2**) and is considered to represent a balance between environment, engineering, and cost factors.
- 2.8.10 As described in **Chapter 3: Consideration of Alternatives (EIAR Volume 2)** the routeing process has facilitated the effective mitigation of many potentially significant environmental effects through the design. A summary of the potential effects addressed through the routeing process and the issues remaining following the selection of the Proposed Alignment is provided in **Table 2.3**.

<b>Topic</b>	<b>Mitigation</b>	<b>Further Assessment</b>
Landscape and Visual Impact Assessment and Residential Visual Amenity Assessment	The Proposed Development is partially located within the South Lewis, Harris and North Uist National Scenic Area (NSA). It is not located within a Wild Land Area (WLA).  The alignment selection process identified the Proposed Development as preferable, particularly at Ardhasaig, where it follows a similar alignment to the existing OHL which would mitigate potential effects on landscape character and would avoid complex linear patterns across the landscape when viewed from more elevated locations.	<b>Chapter 6: Landscape and Visual Amenity (EIAR Volume 2)</b> provides an assessment of potential effects of the Proposed Development on landscape character and visual amenity.
Cultural Heritage	Targeted field surveys were carried out on areas of potential constraint during the alignment selection stage, where the alignment options passed through areas	<b>Chapter 7: Cultural Heritage (EIAR Volume 2)</b> provides an assessment focussed on identifying the likely

**Table 2.3: Mitigation Achieved Through Design**

Topic	Mitigation	Further Assessment
	<p>of historic crofting townships. The preferred alignment was determined through design iteration which included, in particular, consideration of potential indirect impacts on Druim Dubh stone circle (SM 5504). Other designated heritage assets were identified as having localised settings that would be unlikely to be adversely affected by the nature of the Proposed Development.</p>	<p>significant indirect (setting) effects on cultural heritage assets.</p>
<p>Ecology</p>	<p>Detailed habitat surveys have been carried out for the EIA and to inform the design of the Proposed Development. During the alignment phase the three main habitat types were identified as blanket bog, wet heath and semi-improved acid grassland. The open hillsides are subject to grazing by livestock, primarily sheep. Areas of coniferous woodland plantation were recorded rarely.</p> <p>Further pre-construction surveys would be completed where identified through the EIA process, informing appropriate mitigation prior to construction.</p>	<p><b>Chapter 8: Ecology (EIA Volume 2)</b> assesses the potential effects on terrestrial habitats and protected species, including nearby protected sites, Annex 1 habitats, such as blanket bog and wet heath, and protected species, such as otter.</p>
<p>Ornithology</p>	<p>The Proposed Development crosses the Lewis Peatlands Special Protection Area (SPA) and is within 200 m of the eastern edge of the West Coast of the Outer Hebrides SPA and within 1.5 km of the North Harris Mountains SPA. These SPAs are used by Schedule 1/1A bird species.</p> <p>Field surveys were undertaken in 2021-2022 to inform the route and alignment selection studies, with Vantage Point (VP) surveys undertaken between March 2021 and March 2022, breeding bird surveys undertaken between April 2021 and July 2021 and breeding raptor surveys undertaken between February 2022 and June 2022. The VP surveys were undertaken from 22 VP locations.</p>	<p><b>Chapter 9: Ornithology (EIA Volume 2)</b> assesses the potential for significant effects on ornithological features. The likely direct, indirect, and cumulative effects of the Proposed Development on these features have been assessed and mitigation measures, where appropriate, are proposed to prevent, reduce, or offset any likely significant adverse effects identified.</p> <p>Potential effects of the Proposed Development on these designations is assessed in more details in <b>Technical Appendix 9.3: Habitat Regulations Appraisal, EIA Volume 4</b>.</p>
<p>Geology and Soils</p>	<p>Stage 1 and 2 peat probing surveys have been undertaken, to understand peat depths along the Proposed Development. This has identified areas where micro-siting within the LOD may be required.</p>	<p><b>Chapter 10: Hydrology, Hydrogeology, Geology and Soils (EIA Volume 2)</b> provides an assessment of potential effects of the Proposed Development on peatland habitats and geology.</p>
<p>Hydrology and Hydrogeology</p>	<p>The Proposed Development has avoided where practical, development within 30 m of watercourses, avoiding direct effects</p>	<p><b>Chapter 10: Hydrology, Hydrogeology, Geology and Soils (EIA Volume 2)</b> provides an</p>

**Table 2.3: Mitigation Achieved Through Design**

Topic	Mitigation	Further Assessment
	<p>on surface watercourses/lochans. It is acknowledged that a 50 m buffer is preferred by statutory stakeholders; however, it has not been possible, as a result of engineering constraints, to implement a 50 m buffer along the entire Proposed Development.</p> <p>The Proposed Development would incorporate good practice drainage design during construction and operation, using multi-tiered sustainable drainage system (SUDS) approach to control the rate, volume, and quality of run-off from the Proposed Development.</p> <p>The potential for effects on hydrological features during construction would be strictly controlled in accordance with a detailed CEMP.</p>	<p>assessment of potential effects of the Proposed Development on the water environment.</p> <p>It is supported by:</p> <p><b>Technical Appendix 10.4: Watercourse Crossing Assessment;</b></p> <p><b>Technical Appendix 10.5: Groundwater Dependent Terrestrial Ecosystem Assessment;</b> and</p> <p><b>Technical Appendix 10.6: Private Water Supply Assessment.</b></p>

## 2.9 Operation Management and Maintenance

### Maintenance Programme

- 2.9.1 In general, given the nature of the Proposed Development, there would be a negligible or no demand for energy, materials, or natural resources during the operational life of the OHL. OHLs require very little maintenance.
- 2.9.2 Regular inspections would be undertaken to identify any unacceptable deterioration of components, so that they can be replaced. From time to time, inclement weather, storms, or lightning can cause damage to either the insulators or the conductors. If conductors are damaged, short sections may have to be replaced. The design life of trident H poles is 40 years.

### Managed Operational Corridor

- 2.9.3 In addition to the removal of vegetation to facilitate construction it is necessary to create safe corridors for operation. The operational corridor required where there is forestry is calculated as: Max. height of tree + safety distance (1.4 m, taken from the ENA 43-8<sup>9</sup>) + ½ width of OHL (2.5 m). This is to maintain the resilience of the connection by considering the falling distance of adjacent trees plus the industry applied safety distance and the width of the relevant pole type. As a result, the final corridor width would be based on the safety distance required to allow for a mature tree falling towards the OHL at the mid-point on a span between two trident H poles, taking account of topography and tree height at maturity.

## 2.10 Use of Natural Resources

- 2.10.1 The EIA Regulations require the consideration of the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources. The Proposed Development would affect the land use within approximately 21.5 ha of land as stated in **Table 2.1** of this chapter and presented in **Figure 2.2: Land Take and Forestry Removal (EIAR Volume 3a)**. Other than the change of land use, given the nature of the Proposed Development (i.e. there are no production processes), there would be a negligible or no demand for natural resources during the operational life of the OHL and therefore no likely significant effect on the sustainable availability of such resources.

<sup>9</sup> Energy Networks Association (ENA) Technical Specification 43-8 Issue 4 2015 + Amendment 1 2016: Overhead line clearances

## 2.11 Residues and Emissions

2.11.1 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.

2.11.2 **Table 2.4** provides a summary of the anticipated residues and emissions, which have been used to inform the scope of this EIA.

<b>Table 2.4: Residues and Emissions</b>	
<b>Topic</b>	<b>Potential Residue/Emission</b>
Water	<p>Construction:</p> <p>Surface water runoff and discharge is likely during construction. In addition, occasional discharges may arise from pumping, or over-pumping to dewater foundation excavations. Pollution sources may arise from soil erosion or oil/ fuel or chemical storage and use. All works in and around watercourses will follow best practice guidance and measures set out in the CEMP. Further details can be found in <b>Chapter 10: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)</b>.</p> <p>Operation:</p> <p>No water emissions or pollution sources have been identified for the operational phase.</p>
Air	<p>Construction:</p> <p>The construction phase would require the transport of people and materials by road and air, with associated emissions to the atmosphere. There are no air quality management areas within the vicinity of the Proposed Development. No significant air emissions are anticipated.</p> <p>Operation:</p> <p>Due to the nature of the Proposed Development no significant point source or diffuse air emissions would be produced during its operation.</p> <p>The Proposed Development would contribute to connecting renewable electricity generation capacity to the transmission network, in turn displacing emissions associated with fossil fuel based electricity generation elsewhere.</p>
Soil and Subsoil	<p>Construction:</p> <p>Soil and subsoil excavation, handling and storage would be required during construction. All soil and subsoil would be stored temporarily for use in reinstatement (<b>Appendix 2.3: SSEN GEMP, EIAR Volume 4</b>).</p> <p>Operation:</p> <p>No requirement for soil or subsoil excavation or handling during the operation phase has been identified. No pollution sources have been identified for the operational phase.</p>
Noise and Vibration	<p>Construction:</p> <p>Noise sources during the construction phase would include increased traffic flows and noise from construction plant. Further detail is provided in <b>Chapter 11: Traffic and Transport (EIAR Volume 2)</b>. The potential for nuisance effects on residential or recreational amenity will be limited and will be strictly controlled in accordance with a detailed CEMP.</p> <p>There would be no significant vibration emissions associated with the Proposed Development.</p> <p>Operation:</p> <p>Noise emission levels from a 132 kV OHL are unlikely to be perceptible during dry weather; however perceptible noise can arise in wet weather as a result of a phenomenon known as 'corona discharge'. This phenomenon generally occurs during damp weather when rain enhances the local electrical field strength allowing an audible discharge to occur. However, this is not predicted to be significant and this topic is scoped out of the EIA (see <b>Chapter 4: EIA Consultation and Scope, EIAR Volume 2</b>).</p>

**Table 2.4: Residues and Emissions**

Light	<p>Construction:</p> <p>The temporary construction compounds would likely be equipped with lighting installations for use during low light conditions and passive infra-red sensor controlled security lighting. Any effect would be temporary and not expected to be significant.</p> <p>Operation:</p> <p>No light sources have been identified during normal operation of the Proposed Development.</p>
Heat and Radiation	<p>Construction:</p> <p>No heat or radiation sources have been identified during the construction phase.</p> <p>Operation:</p> <p>Electromagnetic fields (EMFs) are emitted from OHLs, with potential effects on human health. The typical field strengths for 132 kV OHL are within the International Commission on Non-Ionising Radiation Protection (ICNIRP) exposure guidelines. As such no likely significant effects on human health are predicted associated with the Proposed Development.</p>
Waste	<p>Construction:</p> <p>The construction stage would require felling of some areas of woodland. As such, it is anticipated that forestry related residues (brush and mulch) would result from the felling operations.</p> <p>Construction would generate low quantities of general waste in the form of domestic wastes and other materials, for example, wood, metals, plastics, and stone. Waste will be managed in accordance with good practice guidance on the use of a Site Waste and Materials Management Plan<sup>10</sup>, to implement the waste management hierarchy<sup>11</sup>.</p> <p>There would be no significant waste emissions associated with the Proposed Development.</p> <p>Operation:</p> <p>Electricity transmission does not produce any solid or liquid waste. However, the general maintenance of the OHL has the potential to produce a small amount of waste. This is likely to be restricted to waste associated with employees and visiting contractors.</p> <p>Decommissioning/Dismantling:</p> <p>The main waste streams associated with the dismantling of the existing 132 kV OHL as well as the future decommissioning of the Proposed Development would include glass (from insulators) and metal (conductors). All demolition waste would be managed in accordance with the waste hierarchy to maximise opportunities for reuse and recycling and will comply with all relevant legislation.</p>

## 2.12 Disaster Resilience

- 2.12.1 The EIA regulations require the consideration of the potential risks to human health, cultural heritage or the environment associated with the vulnerability of the Proposed Development to major accidents and disasters. This requirement is interpreted as requiring the consideration of low likelihood but high consequence events which would result in serious harm or damage to environmental receptors.
- 2.12.2 Given the nature of the Proposed Development, the potential for risks related to the vulnerability to major accidents and disasters are likely to be limited to those associated with unplanned power outages, due to extreme weather or structural damage.

<sup>10</sup> NetRegs. Site Waste Management Plans: <https://www.netregs.org.uk/environmental-topics/waste/storage-handling-and-transport-of-waste/site-waste-management-plans-swmp/> [Accessed July 2022]

<sup>11</sup> Scottish Government (2017) Applying the waste hierarchy: guidance: [https://www.gov.scot/publications/guidance-applying-waste-hierarchy/pages/3/#:~:text=The%20waste%20hierarchy%20ranks%20waste,the%20lifecycle%20of%20the%20material.&text=When%20waste%20is%20created%2C%20it,all%20disposal%20\(i.e.%20landfill\)](https://www.gov.scot/publications/guidance-applying-waste-hierarchy/pages/3/#:~:text=The%20waste%20hierarchy%20ranks%20waste,the%20lifecycle%20of%20the%20material.&text=When%20waste%20is%20created%2C%20it,all%20disposal%20(i.e.%20landfill)) [Accessed July 2022].

2.12.3 Relevant types of accident/disaster, given the predominantly rural context of the Proposed Development, include:

- severe weather events, including high winds, high rainfall leading to flooding, or extreme cold leading to heavy snow and ice loading;
- wild fire;
- traffic related accidents; and
- mass movement associated with ground instability.

2.12.4 Severe weather resilience is a core component of the network design, and includes consideration of flooding resilience, overhead line design and vegetation management to reduce the risk of unplanned power cuts. Crisis management and continuity plans are in place across the Applicant's network. These are tested regularly and are designed for the management of, and recovery from, significant energy infrastructure failure events. Where there are material changes in infrastructure (or the management of it) additional plans are developed. Details of the basis on which this topic has been scoped out of the EIA are provided in **Chapter 4: Description of Development (EIAR Volume 2)**.

## 2.13 Decommissioning

2.13.1 The Proposed Development would not have a fixed operational life. It is assumed that the Proposed Development would be operational for 40 years or more. The effects associated with the construction phase can be considered representative of worst-case decommissioning effects, and therefore no separate assessment has been undertaken as part of this EIA.



## 3. CONSIDERATION OF ALTERNATIVES

### 3.1 Introduction

- 3.1.1 The overall objective of the Proposed Development is to replace the existing 132 kV trident wood pole OHL which is over 30 years old. The replacement would include a fibre-optic cable for electricity network control purposes, meeting the requirements for modern communication, protection and operation of the circuit and increasing network resilience. Further details on the project need are provided in **Chapter 1: Introduction (EIAR Volume 2)**. In accordance with Regulation 5(2)(d) and Schedule 4, paragraph 2 of the EIA Regulations, this chapter outlines the reasonable alternatives studied by the Applicant, which are relevant to the Proposed Development and its specific characteristics. The chapter also describes the main reasons for the option chosen, taking into account the effects of the Proposed Development on the environment.
- 3.1.2 An iterative process of design development and route selection in accordance with SSEN Transmission guidance<sup>1</sup> (the routeing process) has been completed since project inception in 2021, in response to the need for existing asset management. A summary of the process is provided in Section 3.3.
- 3.1.3 This chapter summarises key stages in the routeing process and the alternatives which have been considered at each stage in order to reach the final design, namely the Proposed Development, as described in **Chapter 2: Description of the Proposed Development (EIAR Volume 2)**. The routeing process and the final configuration of the Proposed Development have been informed throughout by the consideration of a balance of factors, as well as landowner and wayleave considerations. The routeing process has also been supported throughout by an ongoing process of consultation with statutory consultees, landowners, and the local community.
- 3.1.4 This chapter is supported by the following Figures (EIAR Volume 3a):
- Figure 1.1: Location Plan and Overview
  - Figure 2.1: Proposed Development
  - Figure 3.1: Proposed Corridor
  - Figure 3.2: Route Options
  - Figure 3.3: Alignment Options
  - Figure 3.4: Preferred Alignment
- 3.1.5 This chapter is also supported by further routeing, alignment and consultation documents produced throughout the project evolution (2021-2022). These are referenced throughout the text where applicable.

### 3.2 Key Policy Considerations

- 3.2.1 As part of its obligations under the Electricity Act 1989 and Transmission Licence, the Applicant has a number of responsibilities including:
- (i) the development and maintenance of an efficient, coordinated and economical system of electricity transmission;
  - (ii) to facilitate competition in the supply and generation of electricity;
  - (iii) to ensure that the security of the network is maintained as the demand and/or generation connections change over time; and
  - (iv) to have regard of potential effects to people and the environment.
- 3.2.2 Under the terms of its transmission licence, the Applicant is obliged to comply with the National Electricity Transmission System Security and Quality of Supply Standard (NETS SQSS)<sup>2</sup>, which provides the criteria for the

<sup>1</sup> Scottish and Southern Electricity Networks (2020) PR-NET-ENV-501: *Procedures for Routeing Overhead Lines and Underground Cables of 132kV and above*, Rev 2.0

<sup>2</sup> National Electricity Transmission System Security and Quality of Supply Standard, Version 2.4, (2019): <https://www.nationalgrideso.com/codes/security-and-quality-supply-standards?code-documents>

planning and design of the transmission system. The NETS SQSS requires the Applicant to provide a transmission connection capable of withstanding single circuit faults without loss of supply and without disconnection of generation stations. Furthermore, the Construction (Design and Management) Regulations 2015 (CDM Regulations) require that the design aims to minimise hazards and reduce risks across the whole project lifecycle.

3.2.3 The Applicant is required, under Schedule 9 of the Electricity Act 1989, to:

- "have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest"; and,
- "do what [it] reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects".

3.2.4 Taking account of these obligations, the Applicant has considered engineering, cost, and environment factors in evaluating the alternatives for the Proposed Development, with the aim of identifying a solution that meets the objectives of the Proposed Development which is 'technically feasible and economically viable' and 'which causes the least disturbance to the environment and to the people who live, work, visit and recreate within it'.

### 3.3 Design Alternatives

3.3.1 The EIA Regulations require the Applicant to report upon the main alternatives that were studied and the main reasons for the choice of the development, taking into account the environmental effects. The following alternatives have been considered during the project development:

- The "Do Nothing" scenario;
- Alternative technical options; and
- Alternative overhead line connection options including:
  - two alternative route options across the majority of the study area; and
  - up to three alternative alignment options in select parts of the study area.

#### Do Nothing Scenario

3.3.2 The "do nothing" scenario assumes that no options are considered.

3.3.3 The existing 132 kV trident wood pole OHL between the two connection points is over 30 years of age and is in need of replacement. The construction of the new OHL would improve reliability over the existing OHL, meet more onerous climatic design parameters, and would also include a fibre-optic cable, thus meeting the requirements for modern communication, protection and operation of the circuit. The "do nothing" scenario would result in a significant deterioration of the existing line and would not support the Applicant's ability to meet their licence requirements to develop and maintain an efficient, coordinated, and economic electricity system and ensure security of supply.

#### Alternative Technical Options

3.3.4 Technical options considered by the Applicant as an alternative to the construction of a new OHL are set out in the following sections.

##### *Pole Replacements*

3.3.5 Replacement of the existing poles in situ, particularly those poles showing a high level of decay, was considered. However, this option was not considered viable due to:

- the extensive outages on the existing connection that would be required during each pole replacement. With each two-week outage enabling the replacement of 8-10 poles, it would require 60-70 two-week outages to replace all the poles on the existing 132 kV connection;

- the reliance during each pole replacement on diesel generation at Battery Point Power Station to supply the local demand at Stornoway Substation and, consequently, the increased risk on the wider network due to disconnection of the diesel generators at Battery Point from the rest of the Western Isles;
- the cost and potential carbon impact associated with reliance on diesel generators during each pole replacement; and
- the design of the existing poles being no longer current. Current designs enact higher environmental loadings which would result in the existing design being overloaded.

#### *Underground Cabling*

3.3.6 A full route underground cable option was also not taken forward for consideration as:

- it would be subject to many of the same physical and environmental constraints as an OHL;
- installation of a cable would result in greater challenges with regards to peat and bog habitat management and the reinstatement of peat, bog and bedrock environments, in comparison with an OHL;
- any benefits relating to visual impact would be transient and short term; however, reinstatement in challenging conditions (rock/ peat/ bog) may not be achievable;
- constructability of a cable route over this distance would be challenging due to the prevalence of shallow rock, in particular on Harris, and peat bog or loch/ lochan;
- the potential repair time for an underground cable would be much longer than for an OHL and, with this as a radial circuit, in a fault scenario, there would be no alternative transmission connection and the consequence of failure to maintain supplies would be greater; and
- the significantly greater cost of an underground cable route between Harris and Stornoway, in comparison with an OHL. As a licensed Transmission Network Operator, the Applicant has an obligation to provide a cost-effective network and, as such, in the absence of any overriding environmental or technical requirements, undergrounding the full route was not considered a viable solution.

#### *Subsea Cable*

3.3.7 A number of environmental constraints associated with installation of a subsea cable were identified, including shipping, fishing, aquaculture sites, the potential for unrecorded wrecks and foul areas, the complex bathymetry and presence of designated sites. However, it was considered that these constraints could be addressed through route selection and may not represent significant obstacles to development of a subsea cable option. The potential cost for a subsea cable route of approximately 65 km between landfalls at Harris and Stornoway was estimated to be approximately 376% of the cost of an OHL solution; therefore a subsea cable option was not considered to represent a cost-effective alternative and would not meet the Applicant's license obligations.

#### *Alternative Overhead Line Solutions*

3.3.8 The use of trident OHLs was identified as the preferred solution, based on expert assessment and experience in other Scottish Islands. Trident OHLs minimise landscape and visual impact and consequently lead to reduced programme risk when compared to other solutions e.g. New Suite of Transmission Structures (NeSTS) or Towers. NeSTS single circuit support structures have an increased visual impact in comparison to the preferred technology option, which is an important consideration in the Western Isles. Given the abundance of peat on Lewis, foundations requiring less excavation of material are also greatly favoured from an environmental perspective. The cost differential between trident H poles and single circuit NeSTS is also significant. It is the cumulative effect of these factors that has ruled NeSTS as unfavourable for this project. The use of steel lattice towers was also considered at an early stage but was considered unfavourable based on expert assessment and due to the fact that this is not a structure that has been deployed elsewhere in the Scottish Islands. The trident H pole solution was identified as sufficient to meet the capacity requirements for the connection, and can be delivered at significantly lower cost, thus meeting the Applicant's license obligations.

### Alternative Overhead Line Route Options

- 3.3.9 The Proposed Development was first introduced to stakeholders in June 2021. At this stage, the Applicant shared the general project scope and identified a Proposed Corridor for a new OHL route (**Figure 3.1: Proposed Corridor, EIAR Volume 3a**).
- 3.3.10 Route selection work was previously undertaken in respect of a connection between a proposed new switching station south-west of Balallan, Lewis, and a new converter station and substation site at Arnish Point, Lewis, as part of a separate SSEN project (Balallan-Stornoway 132 kV Overhead Line Replacement). This separate project was put on hold; however, the route selection work served to identify a proposed alignment for a new 132 kV OHL between Balallan and a point approximately 1.5 km south west of Stornoway Substation. This proposed alignment is shown on Figure 3.1 and no further route selection work was undertaken for this section of the Proposed Corridor.
- 3.3.11 A Route Selection study was undertaken in Q2 2021 for the remainder of the Proposed Corridor. For ease of assessment and reporting, the Proposed Corridor was split into four sections, based on topography and landform, as follows:
- Section 1: Stornoway to Arnish;
  - Section 2: Balallan to east of Abhainn a' Mhuil;
  - Section 3: East of Abhainn a' Mhuil to Taobh (northwest of Tarbert); and
  - Section 4: Tarbert to South Harris
- 3.3.12 A comparative analysis of environmental, engineering and cost criteria of alternative Route Options identified by the Applicant within each section was undertaken (**Figure 3.2: Route Options, EIAR Volume 3a**). The comparative analysis is summarised as follows:
- In Section 1, Route Option 1a was preferred over Route Option 1b on the basis of environmental, engineering and cost considerations, as it would have least potential for impact on sensitive habitats (Class 1 peatland) and would require fewer crossings of SSEN Distribution OHLs.
  - In Section 2, Route Option 2a was preferred over Route Option 2b on the basis of environmental, engineering and cost considerations. It was acknowledged that a greater extent of forest felling would likely to be required for Route Option 2a; however, Route Option 2b would have greater potential for impact on non-designated heritage assets, landscape character and residential amenity. In addition, Route Option 2b has greater potential than Route Option 2a to be constrained technically as a result of its crossing the existing 132 kV OHL, crossing the A859 road twice and crossing existing SSEN Distribution OHLs in two locations. In terms of total cost, Route Option 2b would have a higher cost due to the greater number of road crossings and SSEN Distribution OHL crossings in comparison with Route Option 2a.
  - In Section 3, Route Option 3a was marginally preferred over Route Option 3b as it would have lesser potential for impact on a private water supply (PWS) and to sensitive habitat (Class 1 peatland). Route Option 3b was also identified as being longer and requiring a greater number of SSEN Distribution OHL crossings. In comparing Route Options 3c and 3d, it was concluded that Route Option 3c was preferred on the basis of engineering and cost considerations, as Route Option 3d would be technically difficult to install without substantial earthwork, due to its largely being situated on side slopes of up to 30 degrees. There would also need to be permanent access works to allow safe access to the pole positions for construction and future maintenance of the Proposed Development. In comparing Route Options 3e and 3f, it was concluded that Route Option 3e was preferred on the basis of engineering considerations while Route Option 3f was preferred on the basis of environmental considerations. On balance, Route Option 3e was selected as the preferred option as it was concluded that Route Option 3f would be technically difficult to install without substantial earthwork, due to its largely being situated on side slopes of up to 40 degrees. There would also need to be permanent access works to allow safe access to the pole positions for construction and future maintenance of the proposed development.

- In Section 4, Route Option 4a was preferred over Route Option 4b on the basis of environmental, engineering and cost considerations, as it would have less potential for impact on landscape, visual amenity and proximity to dwellings, although it was acknowledged that Route Option 4b may have marginally less potential for constraint in relation to hydrology (PWS) and peatland habitat. In terms of engineering and cost considerations, Route Option 4a was preferred to as a result of its lesser number of road crossings and crossings of existing distribution voltage OHLs.

3.3.13 In September and October 2021 stakeholders were consulted on the route selection process undertaken and the selection of the overall Preferred Route. Details of the feedback from consultees are summarised in the Pre-Application Consultation Report, submitted as a separate document with the application: **Harris - Stornoway 132 kV Overhead Line Replacement: Report on Consultation and Routeing Decisions**.

#### Alternative Overhead Line Alignment Options

3.3.14 Following the identification of a Proposed Route, a Baseline Alignment was developed with the aim of providing the optimal alignment within the Proposed Route, taking account of technical criteria. The Baseline Alignment was also considered to represent the base cost option. Following the identification of the Baseline Alignment, amendments were suggested (hereafter referred to as 'deviations'). These deviations were largely suggested to address environmental and engineering issues and feedback from previous consultation. The suggested deviations were assessed<sup>3</sup> against the Baseline Alignment in line with the engineering and environmental criteria in accordance with SSEN Transmission Guidance.

3.3.15 The deviations identified are explained below (**Figure 3.3: Alignment Options, EIAR Volume 3a**):

- **Alignment Deviation 1a:** This deviation moved the baseline alignment to the west and further from the Druim Dubh, stone circle (SM 5504) to offer potential improvements to the setting of this scheduled monument, in response to advice received from Historic Environment Scotland (HES) during the routeing consultation.
- **Alignment Deviation 2a:** this deviation moved the baseline alignment to the west and further from the Aline Woodland walks, whilst seeking to retain as much distance as possible from waterbodies. This deviation was introduced in order to offer potential improvements to visual amenity from the woodland walks, in response to concerns raised by CnES regarding potential impacts on walking routes during the routeing consultation.
- **Alignment Deviation 3a:** This deviation moved the baseline alignment to sit immediately west of the A859 road at Ardhasaig. It was considered that this deviation offered potential improvements to visual amenity from surrounding dwellings, in conjunction with undergrounding of the existing distribution connection in that location.
- **Alignment Deviation 3b:** This deviation moved the baseline alignment further to the west and further from residential dwellings on the Ardhasaig peninsula. It was considered that this deviation offered potential improvements to visual amenity from surrounding dwellings, which would be at greater distance than the alternative alignment options at Ardhasaig.

3.3.16 A comparative appraisal of the environmental, engineering, and cost sensitivities and risks was then undertaken for each alignment option in accordance with the methodology set out in SSEN Transmission guidance. The Preferred Alignment was identified as comprising the following (**Figure 3.4: Preferred Alignment, EIAR Volume 3a**):

- an alternative deviation in proximity to the scheduled monument (Druim Dubh) was agreed, which would allow greater distance between the Proposed Development and the scheduled monument (Druim Dubh) than for the Baseline Alignment, thereby reducing potential impacts on the setting of the scheduled monument, while also reducing the need for angle poles and remaining closer to the road than Deviation 1A;
- the Baseline Alignment was selected over Deviation 2A on the basis that this would minimise tree loss and make use of the existing forestry corridor, thereby having a lesser impact on visual amenity; and

<sup>3</sup> Detailed review of the comparative analysis of deviation options is reported in the Alignment Selection Report (SSEN Transmission, 2022).

- an alternative deviation was discussed and agreed at Ardhasaig, in preference to the Baseline Alignment, Deviation 3A and Deviation 3B, on the basis that this would represent a preference in engineering terms, while also remaining close to the road and allowing the existing distribution connection to be undergrounded in this area (thereby reducing potential visual impacts).

3.3.17 The Preferred Alignment was consulted on in February and March 2022, as summarised in the Pre-Application Consultation Report: **Harris - Stornoway 132 kV Overhead Line Replacement: Report on Consultation and Routeing Decisions**. Following receipt of consultation feedback, an on-site meeting was held in March 2022 when members of the SSEN Transmission project team met with members of the community at Ardhasaig. Concerns raised by landowners over the visual and residential amenity impacts of the OHL at Ardhasaig were discussed. The Applicant subsequently amended the alignment at Ardhasaig to address consultee feedback and further consultation events were held in June 2022 to indicate how the concerns raised had been addressed. The Proposed Alignment was subsequently confirmed, as shown in **Figure 2.1: Proposed Development (EIAR Volume 3a)**.

### 3.4 Summary

- 3.4.1 The Applicant has considered a number of alternatives in determining the key parameters of the Proposed Development, as well as key feedback from statutory bodies and the local community.
- 3.4.2 The "do nothing" scenario (i.e. no new 132 kV OHL) would result in a significant deterioration of the existing line and would not support the Applicant's ability to meet their licence requirements to develop and maintain an efficient, coordinated, and economic electricity system.
- 3.4.3 The Applicant considered a number of alternative technical options which included replacement of the most degraded poles along the existing OHL, an underground cabling option and a subsea cable option. None of these options were considered viable alternatives to an overhead line, on the basis of wider connection issues and/or cost. Alternative overhead line options were also considered, and a new trident OHL was identified as preferred.
- 3.4.4 A Preferred Route was selected based on environmental, cost and engineering constraints and brought forward to consultation, prior to selection of a Proposed Route.
- 3.4.5 A Baseline Alignment with alternative deviations was subsequently considered and a Preferred Alignment was identified and consulted on in February 2022. Consultation feedback identified concerns over the residential amenity impact of the Preferred Alignment on properties at Ardhasaig, and the alignment was subsequently altered in this area.
- 3.4.6 Further details on the Proposed Development can be found in **Chapter 2: Project Description (EIAR Volume 2)**. A summary of how consultation has influenced the design is provided within each technical chapter, as well as in the Pre-Application Consultation Report: **Harris - Stornoway 132 kV Overhead Line Replacement: Report on Consultation and Routeing Decisions**.
- 3.4.7 Details of all the key routeing and consultation documents produced through the project evolution are also provided in **Table 3.1**.

<b>Table 3.1: Summary of Routeing and Consultation Documents through Project Evolution</b>		
<b>Year</b>	<b>Routeing / Consultation Stage</b>	<b>Document / Website Reference</b>
September 2021	The route selection process was consulted on in September-October 2021. From this process, a Proposed Route was selected to be brought forward to the alignment selection stage.	Consultation Document. Overhead Line Route Selection. Lewis-Harris 132 kV Overhead Line Connection. Reference LT000245 <a href="https://www.ssen-transmission.co.uk/projects/project-map/harris--stornoway-132kv-ohl/">https://www.ssen-transmission.co.uk/projects/project-map/harris--stornoway-132kv-ohl/</a>
February 2022	The alignment selection process was consulted on in February-March 2022.	Consultation Document. Overhead Line Alignment Selection. Lewis-Harris 132 kV Overhead Line Connection. Reference LT000245 <a href="https://www.ssen-transmission.co.uk/projects/project-map/harris--stornoway-132kv-ohl/">https://www.ssen-transmission.co.uk/projects/project-map/harris--stornoway-132kv-ohl/</a>
May 2022	The EIA Scoping Report was submitted to the ECU in May 2022 with the Preferred Alignment.	Environmental Impact Assessment. Stornoway – Harris 132 kV Overhead Line Connection. Scoping Report. Connection LT000245. <a href="https://www.energyconsents.scot/ApplicationDetails.aspx?cr=ECU00004490">https://www.energyconsents.scot/ApplicationDetails.aspx?cr=ECU00004490</a>
June 2022	A potential alignment deviation at Ardhasaig was presented to the community during three pre-application consultation events. From this process, the Proposed Alignment was selected.	Consultation Booklet. Harris-Stornoway 132 kV Overhead Line Connection. <a href="https://www.ssen-transmission.co.uk/projects/project-map/harris--stornoway-132kv-ohl/">https://www.ssen-transmission.co.uk/projects/project-map/harris--stornoway-132kv-ohl/</a>

## 4. EIA CONSULTATION AND SCOPE

### 4.1 Introduction

- 4.1.1 Consultation and engagement with stakeholders is an important part of the EIA process, with advice and input from key consultees being sought at the early design stages of a project, to inform decisions about the Proposed Development.
- 4.1.2 This chapter describes the pre-application consultation undertaken to date and EIA scoping process that was undertaken to determine the scope of the EIAR and inform design evolution. This chapter also provides a brief description of the potentially significant effects associated with the Proposed Development which are addressed in detail in this EIAR, as well as the issues which have been scoped out.
- 4.1.3 Stakeholder consultation has been ongoing since the early stages of the project (June 2021) and continued throughout the EIA development process during 2022. Consultation events held between June 2021 and February 2022 were conducted in line with COVID-19 restrictions<sup>1</sup>, using virtual exhibitions and online interactive chat functions. Whereas the Alignment consultation events in June 2022 were held in-person. All the events were supported by Consultation Brochures mailed out to the relevant postcodes around the Proposed Development location. Project documentation was also made available on the project website<sup>2</sup> to download and contact details were provided to allow stakeholders to request paper copies of documents or contact the project team directly with their views and questions.
- 4.1.4 This chapter is supported by the following Technical Appendices and supporting documentation:
- **Technical Appendix 4.1: EIA Scoping Report (EIAR Volume 4);**
  - **Technical Appendix 4.2: Scoping Opinion (EIAR Volume 4);**
  - **Technical Appendix 4.3: Consultation Register (EIAR Volume 4);**
  - Pre-Application Consultation Report: **Harris-Stornoway 132 kV Overhead Line Replacement: Report on Consultation and Routeing Decisions 2022**

### 4.2 Stakeholder Consultation

- 4.2.1 Best practice in EIA encourages consultation and engagement with stakeholders early in the process, with advice and input from key consultees being sought at the early design stages of a project, to inform decisions about the Proposed Development. The following stakeholder consultation has been undertaken to date:
- A virtual public consultation event to present the Preferred Corridor was held in June 2021;
  - Three virtual public consultation events on the alternative Route Options were held in September 2021;
  - Four virtual public consultation events on the Preferred Alignment were held in February 2022;
  - A scoping request for the Preferred Alignment was submitted in May 2022; and
  - Three further in-person consultation events on the Preferred Alignment were held in June 2022.
- 4.2.2 A 30-day consultation period was held after each of the consultation events to allow community feedback. Key issues emerging from statutory and non-statutory consultee responses included:
- potential impacts on scheduled monument Druim Dubh stone circle (SM5504);
  - potential impacts on habitats and peatlands; and
  - siting of the alignment at Ardhasaig.

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<sup>1</sup> As detailed within the Coronavirus (Scotland) Act 2020 and the Electricity Works (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2022

<sup>2</sup> [www.ssen-transmission.co.uk/projects/harris-stornoway-132kv-ohl/](http://www.ssen-transmission.co.uk/projects/harris-stornoway-132kv-ohl/)



- 4.2.3 Further information on consultation undertaken for each environmental topic assessment is available in each technical **Chapter (6 to 11)** of this EIAR, with full details of EIA Scoping consultation feedback provided within **Technical Appendix 4.3: Consultation Register (EIAR Volume 4)**.
- 4.2.4 A summary of the route and alignment selection process, including an indication of the main reasons for selecting the Proposed Alignment and a comparison of the potential environmental effects associated with the alternative options, is provided in **Chapter 3: Consideration of Alternatives**. A summary of the mitigation measures incorporated into the design, in response to consultee feedback, is provided in **Chapter 2: Description of Development**.

### 4.3 EIA Scoping

- 4.3.1 A request for a Scoping Opinion was made to the Energy Consents Unit (ECU) (acting on behalf of Scottish Ministers) under Regulation 12<sup>3</sup> of the EIA Regulations in May 2022. A Scoping Report was submitted to support the request (**Technical Appendix 4.1: EIA Scoping Report, EIAR Volume 4**) which sought input from the ECU, and statutory and non-statutory consultees regarding the information to be included within this EIAR.
- 4.3.2 A Scoping Opinion was provided by the ECU on 11 July 2022 and is included in **Technical Appendix 4.2: EIA Scoping Opinion (EIAR Volume 4)**. The responses, contained within the Scoping Opinion have been considered in detail during the EIA process.
- 4.3.3 The EIA Scoping Report was also issued by the ECU to the following statutory and non-statutory consultees:
- Comhairle nan Eilean Siar (CnES);
  - Historic Environment Scotland (HES);
  - NatureScot;
  - Scottish Environmental Protection Agency (SEPA);
  - British Horse Society;
  - British Telecommunications plc;
  - Civil Aviation Authority – Airspace;
  - Crown Estate Scotland;
  - Defence Infrastructure Organisation;
  - Fisheries Management Scotland;
  - Highlands and Islands Airports Limited;
  - Joint Radio Company Limited;
  - John Muir Trust;
  - Kinloch Community Council;
  - Maritime and Coastguard Agency;
  - Mountaineering Scotland;
  - National Grid;
  - NATS Safeguarding;
  - North Harris Community Council;
  - North Lochs Community Council;
  - Nuclear Safety Directorate;
  - RSPB Scotland;
  - Scottish Rights of Way and Access Society;
  - Scottish Water;

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<sup>3</sup> Regulation 12 – Request for Scoping Opinions. Available at <https://www.legislation.gov.uk/ssi/2017/101/regulation/12/made>

- Scottish Wildlife Trust;
- Scottish Wild Land and Group;
- Stornoway Community Council;
- Visit Scotland;
- West of Scotland Archaeology Service; and
- Western Isles District Salmon Fisheries Board.

4.3.4 The EIA Scoping Report outlined that the Proposed Development has the potential to result in likely significant effects on the environment associated with the following topic areas:

- Landscape Character and Visual Impact;
- Cultural Heritage;
- Ecology;
- Ornithology;
- Hydrology, Hydrogeology, Geology and Soils; and
- Traffic and Transport.

4.3.5 Detail on the key issues identified through the EIA Scoping, Gatecheck and consultation process, and how they have influenced the route, alignment selection and consideration of alternative options are described in the Pre-Application Consultation Report: **Harris-Stornoway 132 kV OHL Report on Consultation and Routeing Decisions**. A detailed summary of all the consultation responses can be found in **Technical Appendix 4.3: Consultation Register (EIAR Volume 4)**.

#### 4.4 Topics Scoped Out of the EIA

4.4.1 Several topics or elements of topics have been scoped out of the EIA and are therefore not reported in the EIAR. **Table 4.1** provides a summary of the topics and elements that are scoped out. As noted in **Chapter 2: Description of Development**, potential effects associated with the construction phase are considered representative of worst-case decommissioning effects; therefore, no separate assessment of impacts associated with decommissioning of the Proposed Development has been undertaken as part of this EIA. The scope of the EIA was agreed within the Scoping Opinion.

**Table 4.1: Topics and topic elements scoped out of the EIA Report**

Environmental Factor	Scoped Out
Landscape Character and Visual Impact	<ul style="list-style-type: none"> <li>• No issues scoped out.</li> </ul>
Cultural Heritage	<ul style="list-style-type: none"> <li>• Battlefields;</li> <li>• World Heritage Sites;</li> <li>• Listed buildings within the Stornoway townscape;</li> <li>• Designated heritage assets that lie outside of the zone of theoretical visibility (ZTV) for the Proposed Development; and</li> <li>• Assessment of settings impacts on designated heritage assets more than 2 km from the Proposed Development</li> </ul>
Ecology and Nature Conservation	<ul style="list-style-type: none"> <li>• Statutory designated sites within 10 km of the Proposed Development where there is no potential impact pathway</li> <li>• Potential impacts on protected species (otter; reptiles and amphibians, terrestrial invertebrates, aquatic ecology, including fish) and from invasive species (rhododendron).</li> </ul>
Ornithology	<ul style="list-style-type: none"> <li>• Barrier effects;</li> </ul>

**Table 4.1: Topics and topic elements scoped out of the EIA Report**

Environmental Factor	Scoped Out
	<ul style="list-style-type: none"> <li>• Potential disturbance and displacement during the operational phase; and</li> <li>• Operational electrocution.</li> </ul>
Hydrology, Hydrogeology, Geology, and Soils	<ul style="list-style-type: none"> <li>• Flood risk; and</li> <li>• Operational impacts.</li> </ul>
Traffic and Transport	<ul style="list-style-type: none"> <li>• Operational impacts; and</li> <li>• Where the thresholds for significant effects during the construction phase are not met in a specific location (in accordance with IEMA Guidelines) further assessment is scoped out.</li> </ul>
Land Use	<p>Current land use within the zone of influence of the Proposed Development has confirmed the presence of low sensitivity agricultural land use and commercial forestry. The likely impacts of the Proposed Development on agricultural land use would potentially be localised loss of grazing access during construction; however, it is anticipated that normal farming activities would be able to resume once the Proposed Development is in operation. No likely significant effects are anticipated on agricultural land use and consequently further assessment is scoped out.</p> <p>The likely impacts of the Proposed Development on productive conifer plantation land use would be related to the permanent felling of an operational corridor and access track corridors, as detailed in <b>Technical Appendix 2.4: Forestry Plan (EIAR Volume 4)</b>. On the basis that permanent felling would be approved subject to compliance with Scottish Government's Control of Woodland Removal Policy<sup>4</sup>, no likely significant effects are anticipated and further assessment is scoped out.</p>
Material Assets	<p>The potential for likely significant effects on socio-economic factors, recreation and tourism was considered in the EIA Scoping Report. Potential effects on visual amenity for tourism and recreational routes and receptors have been assessed in the EIAR as part of the LVIA. The potential for effects on core paths and national cycle routes is included as part of the Traffic and Transport assessment and would be managed according to an outline Traffic Management Plan (TMP). Therefore, a separate recreation and tourism assessment has been scoped out of the EIAR.</p>
Population and Human Health	<p>Topic scoped out of EIA. The potential for impact from EMF (Electro-Magnetic Fields) was considered in Chapter 12 (Population and Human Health) of the Scoping Report and it was confirmed that the typical field strengths for 132 kV OHL are within the International Commission on Non-Ionising Radiation Protection (ICNIRP) exposure guidelines. As such there is no potential for significant effects on human health associated with EMFs. Any potential effects on human health in terms water quality, visual impacts, traffic, and transport have been considered within the appropriate Technical Chapters of this EIAR.</p>
Noise and Vibration	<p>Topic scoped out of EIA. Based on the scope and duration of construction activities required for pole installation, it is expected that construction traffic noise impacts and construction traffic vibration impacts would be negligible; therefore, a detailed assessment of construction traffic noise and vibration has been scoped out of the EIAR. Operational noise is likely to be minimal; the noise associated with</p>

<sup>4</sup> Forestry Commission Scotland. (2009) The Scottish Government's Policy on Control of Woodland Removal. Edinburgh

**Table 4.1: Topics and topic elements scoped out of the EIA Report**

Environmental Factor	Scoped Out
	overhead lines is a result of a phenomenon known as 'corona discharge'. This phenomenon generally occurs during damp weather when rain enhances the local electrical field strength allowing an audible discharge to occur. No significant effect is predicted and this topic is scoped out of the EIA.
Major Accidents and Disasters	The potential for impact resulting from major accidents or disasters is limited to impacts from poles being destabilised. A review was undertaken within Chapter 12 (Population and Human Health) of the Scoping Report regarding the expected effects deriving from the vulnerability of the development to risks of major accidents and disasters. This review did not identify potentially significant effects from major accidents or disasters that would require assessment under the EIA Regulations and therefore this topic has been scoped out from further assessment.
Climate Change	Topic scoped out of EIA. The Proposed Development is required for asset management purposes and would also provide capacity for connection of distributed renewable energy generation to the electricity transmission network, in turn displacing emissions associated with fossil fuel based electricity generation elsewhere. Construction of the Proposed Development is likely to contribute to greenhouse gas (GHG) from vehicles during construction, from the carbon footprint (embodied carbon) of the materials required to build the OHL and from the removal of woodland. However, the GHG emissions from this project are unlikely to increase the nature and magnitude of GHG emissions, as annually there will be projects of this scale that are required to ensure that infrastructure needs are met in Scotland.
Air Quality	Topic scoped out of EIA. The Proposed Development is not considered to give rise to significant effects on air quality. There is the potential for some localised and temporary construction related air quality effects associated with dust (pole construction, passage of vehicles along access tracks) and construction plant and traffic exhaust emissions. However, the nature of the construction activities is that they will be short in duration, intermittent and controllable through the application of good construction practice. Once the Proposed Development is operational there is no potential for significant air quality effects. The potential for nuisance effects on residential or recreational amenity will be limited and will be strictly controlled in accordance with a detailed Construction and Environmental Management Plan (CEMP).
Waste	Topic scoped out of EIA. Due to the nature of the Proposed Development, waste generating activities are not likely to occur during the operation of the OHL. Any waste arising from construction activities will be strictly controlled in accordance with the project CEMP. Therefore, waste has not been assessed further in the EIA.
Light and Heat	Topic scoped out of EIA. Due to the nature of the Proposed Development, no light and heat emissions are likely to occur during the operation of the OHL. Any light emissions arising from construction activities will be strictly controlled in accordance with the project CEMP. Therefore, light and heat have not been assessed further in the EIA.

## 5. METHODOLOGY

### 5.1 Introduction

5.1.1 Environmental Impact Assessment (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. EIA is required where a Proposed Development is 'likely to have significant effects on the environment by virtue of factors such as its nature, size or location'.

5.1.2 This Chapter sets out the approach that has been taken to complete the EIA of the Proposed Development, including reference to legal requirements, relevant guidance, and the assessment of parameters.

### 5.2 EIA Regulations, Guidance and Planning Policy

5.2.1 This EIAR is prepared in accordance with *the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017* (the 'EIA Regulations'). This EIAR contains the information specified in Schedule 4 of the EIA Regulations. The approach to the assessment has been informed by current best practice guidance and planning policy, including the following:

- National Planning Framework (NPF 3)<sup>1</sup>;
- Scottish Government Good Practice Guidance<sup>2</sup>;
- Scottish Planning Policy<sup>3</sup>;
- Scottish Government Planning Advice Note (PAN) 1/2013 (revision 1.0)<sup>4</sup>;
- Planning Circular 1/2017: Environmental Impact Assessment Regulations<sup>5</sup>;
- Historic Environment Scotland and NatureScot 'Environmental Impact Assessment Handbook' Version 5, 2018<sup>6</sup>;
- Institute of Environmental Management and Assessments guidance documents including: Delivering Proportionate EIA<sup>7</sup>; Environmental Impact Assessment Guide to Shaping Quality Development<sup>8</sup>; and Environmental Impact Assessment Guide to Delivering Quality Development<sup>9</sup>; and
- Scottish Government Policy Document on Control of Woodland Removal (2019)<sup>10</sup>.

5.2.2 An overarching technical assessment methodology is summarised in **Plate 5.1**. An overview of the guidance and methodology adopted for each technical study is provided within the respective technical chapters of this EIAR (**Chapters 6 to 11**).

5.2.3 The scope of the EIAR has been informed by the Scoping Opinion, discussed further within **Chapter 4: EIA Consultation and Scope (EIAR Volume 2)**.

### 5.3 EIA Quality

5.3.1 In accordance with regulation 5(5) of the EIA Regulations, the EIAR has been compiled and approved by professional EIA practitioners at Ramboll, holding relevant undergraduate and post-graduate degrees, and/or

<sup>1</sup> Scotland Third National Planning Framework. <https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2014/06/national-planning-framework-3/documents/00453683-pdf/00453683-pdf/govscot%3Adocument/00453683.pdf>

<sup>2</sup> Scottish Government Energy Consents and Deployment Unit (2013) Good Practice Guidance

<sup>3</sup> The Scottish Government, Edinburgh. 2014. Scottish Planning Policy. <https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2020/12/scottish-planning-policy/documents/scottish-planning-policy/scottish-planning-policy/govscot%3Adocument/scottish-planning-policy.pdf>

<sup>4</sup> Scottish Government (2013, revised 2017) Planning Advice Note 1/2013 (revision 1.0): Environmental Impact Assessment

<sup>5</sup> Scottish Government (2017) Planning Circular 1/2017: Environmental Impact Assessment Regulations 2017.

<sup>6</sup> Historic Environment Scotland and NatureScot 'Environmental Impact Assessment Handbook' Version 5, 2018.

<https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=6ed33b65-9df1-4a2f-acbb-a8e800a592c0>

<sup>7</sup> IEMA (2017). Delivering Proportionate EIA. Lincoln: IEMA

<sup>8</sup> IEMA (2015). Environmental Impact Assessment Guide to Shaping Quality Development. Lincoln: IEMA

<sup>9</sup> IEMA (2016). Environmental Impact Assessment Guide to Delivering Quality Development. Lincoln: IEMA

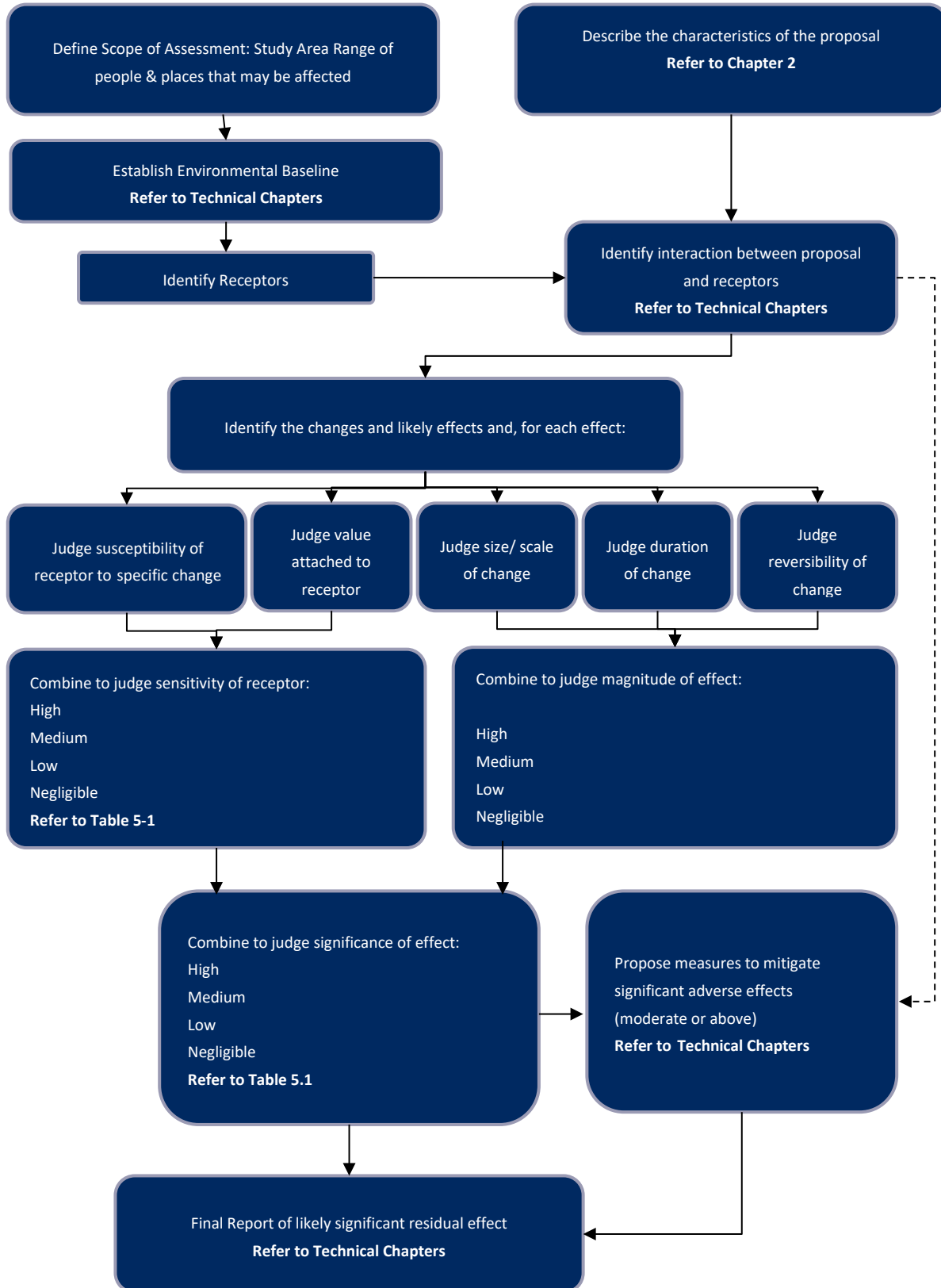
<sup>10</sup> Scottish Government Policy Document on Control of Woodland Removal(2019) <https://forestry.gov.scot/publications/349-scottish-government-s-policy-on-control-of-woodland-removal-implementation-guidance/viewdocument/349>

membership of Institute of Environmental Management and Assessment (IEMA) (MIEMA) and Chartered Environmentalist (CEnv) status with the Society for the Environment.

- 5.3.2 The EIAR meets the requirements of the Institute of Environmental Management and Assessment (IEMA) EIA Quality Mark scheme. This is a voluntary scheme operated by IEMA that allows organisations to make a commitment to excellence in EIA and to have this commitment independently reviewed on an annual basis.
- 5.3.3 Each of the technical chapters provides details of the relevant professional memberships of the authors and code of practice followed in order to confirm relevant competence. The chapters also include details of the assessment methodology used, including the specific criteria for defining the sensitivity of the baseline environment, quantifying the magnitude of change and for assessing whether the effects are deemed significant or not significant under the terms of the EIA Regulations. The following provides a summary of specialist consultants appointed by the Applicant for this EIAR:
- EIA Co-ordination and EIAR production - Ramboll;
  - Ecology and Ornithology - Ramboll;
  - LVIA and RVAA - Ramboll;
  - Archaeology and Cultural Heritage - CFA Archaeology;
  - Hydrology, Hydrogeology, Geology and Soils - Ramboll; and
  - Traffic and Transport – Pell Frischmann.
- 5.3.4 Best practice guidance as set out within the IEMA Quality Mark scheme requires identification of key limitations affecting the EIA process and the resultant EIAR. Limitations in methods are identified and discussed in each technical **Chapter (6-11)** particularly where this is likely to affect the outcomes of the assessment. As with any environmental assessment, there will be elements of uncertainty. Where relevant, these are identified and reported, together with a statement on any implications for the assessment and conclusions.

## 5.4 Identification of Baseline Conditions

- 5.4.1 To identify the scale of likely significant effects as a result of the Proposed Development, it is necessary to establish the existing baseline environmental conditions. The baseline scenario was established through the following methods, where relevant:
- Site visits and surveys;
  - Desk-based studies;
  - Review of existing information;
  - Modelling;
  - Review of relevant national and local planning policies;
  - Consultation with the relevant statutory consultees; and
  - Identification of Sensitive Receptors.
- 5.4.2 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 development are then assessed in the context of the current conditions.
- 5.4.3 The general approach to the assessment of environmental effects is described in Section 5.5 and summarised in the flow diagram in **Plate 5.1**. Any variation to this approach is described within the respective technical chapters of this EIAR (**Chapters 6 to 11**).



**Plate 5.1: Summary of EIA Assessment Methodology**

## 5.5 Assessment of Likely Significant Effects

5.5.1 The next stage in the EIA process was to complete an impact assessment to address the likely significant effects remaining following the implementation of mitigation by design<sup>11</sup>. An assessment chapter has been provided for each issue where it is considered that there are likely significant effects associated with the construction<sup>12</sup> and operational<sup>13</sup> phases of the Proposed Development.

5.5.2 Decommissioning effects are analogous to construction effects but considered to be less significant as no excavation is likely to be required; smaller machinery is generally used and the duration of decommissioning works is shorter. Considering this, the effects of decommissioning the Proposed Development have been scoped out of this EIAR, as detailed in **Chapter 4: EIA Consultation and Scoping (EIAR Volume 2)**.

5.5.3 The characteristics of an effect will vary depending on the duration of the activity, the sensitivity of the receptor and the resultant change. Therefore, it is necessary to assess whether the effect is temporary or permanent; beneficial or adverse and direct or indirect. Temporary effects are usually reversible and generally confined to the construction period. For the purposes of this EIAR the terms used in the assessment are defined as follows:

- Impact - is specific and defined as the action being taken, for example, cutting down trees;
- Effect - is defined as the change resulting from that action, for example, loss of habitat;
- Temporary - where the effect occurs for a limited period of time and the change at a defined receptor can be reversed;
- Permanent - where the effect represents a long-lasting change at a defined receptor which is not reversible;
- Direct - where the effect is a direct result (or primary effect) of the Proposed Development;
- Indirect - a knock-on (or secondary) effect which occurs within or between environmental components, may include effects on the environment which are not a direct result of the Proposed Development, often occurring away from the proposals or as a result of a complex biological or chemical pathway;
- Secondary - an induced effect arising from the actions or presence of a project, such as changes to the pattern of future land use or improvements to local road networks;
- Cumulative - these effects may arise when more than one development of a similar scale and nature combine to create a potentially greater impact than would result from the Proposed Development alone (see also Section 5.7 below);
- Beneficial - an effect beneficial to one or more environmental receptors; and
- Adverse - a detrimental, or negative, effect on one or more environmental receptors.

5.5.4 Where a more appropriate definition of the above terms is applicable to a technical discipline this is clearly outlined with the technical chapters (**Chapters 6 to 11**).

### Significance Criteria

5.5.5 The outcome of the assessment is the determination of whether the likely effect of the Proposed Development on the receptor in the Study Area would be significant or not significant, and adverse or beneficial. Several criteria have been used to determine whether or not the likely environmental effects of the Proposed Development will be deemed 'significant'. The effects have been assessed quantitatively where possible. Generally, the significance of effects has been assessed using one or more of the following criteria:

- international, national, and local standards;
- sensitivity of receiving environment;
- extent and magnitude of the effect; and

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<sup>11</sup> Mitigation by Design is the act of incorporating measures into the development of the design and thereby minimising the risks to the project and the local environment.

<sup>12</sup> This period covers the effects arising from the enabling works, construction works, commission and reinstatement.

<sup>13</sup> This period covers the effects arising from the existence of the Proposed Development, including its operation and maintenance activities.



- reversibility and duration of the effect.

5.5.6 The assessment of significance has considered the magnitude of change (from the baseline conditions), the sensitivity of the affected environment / receptors and (in terms of determining residual effects) the extent to which mitigation and enhancement will reduce or reverse adverse effects. In addition, further influences such as those listed below have been factored into the assessment using professional judgement:

- likelihood of occurrence;
- geographical extent;
- the value of the affected resource;
- adherence of the Proposed Development to legislation and planning policy; and
- reversibility and duration of the effect.

5.5.7 The sensitivity of the receptor / receiving environment to change has been determined using professional judgement, consideration of existing designations (such as Sites of Special Scientific Interest (SSSIs)) and quantifiable data, where possible. The scale generally used high, medium, low, and negligible criteria, as outlined in **Table 5.1** below. As above, methodologies are defined within each of the technical **Chapters (6 to 11)** where they differ from this approach.

5.5.8 The magnitude (scale) of change for each effect has been identified and predicted as a deviation from the established baseline conditions, for the construction and operational phases of the Proposed Development. The scale generally used high, medium, low, and negligible criteria, as outlined in **Table 5.1** below; each of the technical **Chapters (6 to 11)** defines the scale used for its methodology, where it differs from **Table 5.1** below.

5.5.9 Each effect has been assessed taking account of the predicted magnitude of change and the sensitivity of the receptor as shown in **Table 5.1** below to determine an overall significance.

Sensitivity of Receptor / Receiving Environment to Change	Magnitude of Change			
	High	Medium	Low	Negligible
High	Major	Major	Moderate	Negligible
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Minor	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

5.5.10 Unless otherwise stated within a technical chapter, major and moderate effects are considered to be significant in the context of the EIA Regulations. Minor and negligible effects are not usually considered significant.

5.5.11 It should be noted that **Table 5.1** shows the scale that is generally used in EIA to determine overall significance; however, the methodology used by each technical discipline is identified in each of the technical **Chapters (6 to 11)** of this EIAR. Specific criteria have been adopted for certain technical assessments in accordance with widely recognised EIA guidelines published by professional bodies (such as for landscape and visual impact assessment and the assessment of ecological effects). Where applicable, these are provided in the respective technical chapters.

## 5.6 Identification of Mitigation Measures

5.6.1 The impact assessment is used to identify where additional mitigation is required to address likely significant effects, where it has not been possible to avoid the effect through design (**Chapter 2: Description of the Proposed Development (EIAR Volume 2)**) of the Overhead Line (OHL) and micro-siting of pole locations.

Mitigation has been considered following a hierarchy of first seeking to avoid effects, followed by seeking a reduction in effects to a level not considered significant, and finally where necessary and possible, offsetting, or compensatory measures are considered.

- 5.6.2 Each technical chapter details the measures recommended to mitigate any identified significant effects, and a summary of the recommended mitigation measures are provided in **Chapter 13: Schedule of Environmental Mitigation (EIAR Volume 2)**.
- 5.6.3 Following the implementation of mitigation measures, an assessment of the significance of any residual effects has been undertaken. The findings are presented in each technical **Chapter (6 to 11)** of this EIAR.

## 5.7 Cumulative Effects

5.7.1 There are two aspects to Cumulative Effects, defined as follows:

- Inter-cumulative effect: The combined effect of the Proposed Development together with other reasonably foreseeable developments (taking into consideration effects at the site preparation and earthworks, construction, and operational phases); and,
- Intra-cumulative effect: The combined or synergistic effects caused by the combination of a number of effects on a particular receptor (taking into consideration effects at the site preparation and earthworks, construction, and operational phases), which may collectively cause a more significant effect than individually. A theoretical example is the culmination of disturbance from dust, noise, vibration, artificial light, human presence, and visual intrusion on sensitive fauna (e.g. certain bat species) adjacent to a construction site.

5.7.2 A search for other developments was undertaken in July 2022. This considered developments recorded as consented (under construction or not yet constructed), those in planning and those within the public domain, deemed reasonably foreseeable, within 10 km of the OHL. The list of cumulative developments for consideration within the EIA was provided to CnES and NatureScot in August, for their consideration; however, no feedback was received.

5.7.3 The individual technical **Chapters (6 to 11)** present the findings of the assessment of Inter-cumulative effects of the Proposed Development with other schemes. The potential for cumulative effects has been considered in relation to other energy-related development within the study area relevant to each particular issue. The basis for this is that only these development types would have the potential to result in significant cumulative effects in combination with those arising from the Proposed Development.

5.7.4 A list of considered developments, a summary of effects and an assessment of cumulative effect interactions arising from the Proposed Development on certain sensitive receptors are described in **Chapter 12: Cumulative Effects and illustrated on Figure 12.1 (EIAR Volume 3a)**.

## 5.8 Assumptions and Limitations

5.8.1 The key assumptions and limitations are set out below, with those specific to certain topics identified in the appropriate technical **Chapter (6 to 11)**.

- Baseline Conditions have been established from a variety of sources, including historical data<sup>14</sup>, however due to the dynamic nature of certain environmental aspects, conditions will change during the construction and operation of the Proposed Development.
- Information received from third parties is complete and up to date.
- The design, construction and completed stages of the Proposed Development will (at least) meet minimum environmental standards, consistent with current legislation, practice, and knowledge.

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<sup>14</sup> Information from previous assessments which provides an understanding of the environmental background within Proposed Development location and helps inform the assessment and survey requirements.

## 5.9 Co-ordinated Assessment with Habitat Regulations Appraisal (HRA)

- 5.9.1 The Conservation (Natural Habitats &c.) Regulations 1994 (as amended) (“The Habitat Regulations”) requires consenting authorities to decide whether or not a project may have a likely significant effect on a European site, either alone or in combination with other plans or projects. This process is known as HRA. The overarching aim of an HRA is to determine, following an Appropriate Assessment of the implications for the site in view of that site’s conservation objectives, whether the project will adversely affect the integrity of the European Site.
- 5.9.2 The Lewis Peatlands Special Protection Area (SPA), the North Harris Mountains SPA and the West Coast of the Outer Hebrides SPA all lie in close proximity to the Proposed Development and are designated for a range of species, as detailed in **Chapter 9: Ornithology**. As such, there is potential connectivity between the Proposed Development and these SPAs. The potential effects of the Proposed Development on these designations have been assessed during an HRA Stage 1 Screening Assessment (**Technical Appendix 9.3: HRA, EIAR Volume 5**), which accompanies the s37 application.
- 5.9.3 Whilst the overall aims of the EIA and HRA are aligned, their scope, level of details and terminology vary. Therefore, these processes have been undertaken separately. However, the scope presented within the EIAR has been developed to ensure that the needs of these processes have been considered to ensure a coordinated assessment, compliant with Regulation 48<sup>15</sup>.

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<sup>15</sup> <https://www.legislation.gov.uk/uksi/1994/2716/regulation/48/made>

## 6. SEASCAPE, LANDSCAPE AND VISUAL AMENITY

### 6.1 Introduction

6.1.1 This chapter considers the likely significant effects on landscape receptors and visual amenity associated within the construction and operational phases of the Proposed Development described in **Chapter 2: Description of the Proposed Development (EIAR Volume 2)**.

6.1.2 The assessment was carried out by Kyle Lafferty, Senior Landscape Architect at Ramboll UK Limited, in conjunction with Robert Bainsfair (Director/ Senior Managing Consultant Landscape Architecture at Ramboll UK Limited). Between them the assessors have over 20 years' experience in the management and production of Seascape, Landscape and Visual Impact Assessments (SLVIAs) specialising in power generation, transmission and distribution projects.

6.1.3 This chapter is supported by the following figures and technical appendices (EIAR Volume 3a, 3b and 4):

#### 6.1.4 Volume 3a: Figures

- Figure 6.1 – Zone of Theoretical Visibility (ZTV) and Study Area;
- Figure 6.2 – Topography and Study Area;
- Figure 6.3a – Seascape and Landscape Character Types;
- Figure 6.3b – Seascape and Landscape Character Types with ZTV
- Figure 6.4a – Landscape Designations and Classifications;
- Figure 6.4b – Landscape Designations and Classifications with ZTV;
- Figure 6.5a – Visual Receptors, ZTV and Viewpoint Locations - Overview;
- Figure 6.5b - Visual Receptors, ZTV and Viewpoint Locations;
- Figure 6.6a – Cumulative Developments and Viewpoint Locations;
- Figure 6.6b – Cumulative ZTV: Poles, 33 kV OHL and 11 kV OHL;
- Figure 6.6c – Cumulative ZTV: Poles, Beinn Ghrideag Wind Farm and Creed Wind Turbine;
- Figure 6.6d – Cumulative ZTV: Poles, Arnish Moor Wind Farm and Aignish Community Wind Farm;
- Figure 6.6e – Cumulative ZTV: Poles, Stornoway Wind Farm and Beinn Thulabaigh Wind Farm;
- Figure 6.6f – Cumulative ZTV: Poles, Muaitheabha East Wind Farm and Muaitheabhal South Wind Farm;
- Figure 6.6g – Cumulative ZTV: Poles and Muaitheabha Wind Farm;
- Figure 6.6h – Cumulative ZTV: Poles, Mohan Hill Wind Farm and Lemreeway Wind Turbines; and
- Figure 6.6i - Cumulative ZTV: Poles, Pentland Road Wind Farm and Bridge Cottages Wind Turbine

#### 6.1.5 Volume 3b: Figures

- Figures 6.7a – 6.7d: Viewpoint 1: A859 Layby (northeast of Loch Strath Steachran);
- Figures 6.8a – 6.8d : Viewpoint 2: Layby A859 (northwest Tarbet);
- Figures 6.9a – 6.9d: Viewpoint 3: Junction between A859 and A868 (Tarbert);
- Figures 6.10a – 6.10d : Viewpoint 4: Ardhasaig Pier;
- Figures 6.11a – 6.11d : Viewpoint 5: Cliseam Car Park;
- Figures 6.12a – 6.12d: Viewpoint 6: Summit of An Cliseam;
- Figures 6.13a – 6.13d : Viewpoint 7: Viewpoint (Loch Seaforth);
- Figures 6.14a – 6.14d : Viewpoint 8: Bogha Glas Car Park;
- Figures 6.15a – 6.15d: Viewpoint 9: Aline Community Woodland (car park);
- Figures 6.16a – 6.16d : Viewpoint 10: Bonnie Prince Charlie Monument (Arivruaich);

- Figures 6.17a – 6.17d : Viewpoint 11: Balallan Post Office;
- Figures 6.18a – 6.18d : Viewpoint 12: Laxay;
- Figures 6.19a – 6.19d : Viewpoint 13: Luirbost (Village Green);
- Figures 6.20a – 6.20d: Viewpoint 14: Luirbost (West);
- Figures 6.21a – 6.21d: Viewpoint 15: Cnoc na Croich;
- Figures 6.22a – 6.22d : Viewpoint 16: Junction of B897 and A859; and
- Figures 6.23a – 6.23d : Viewpoint 17: Pairc Land Raiders Cairn

#### 6.1.6 Volume 4: Technical Appendices

- Technical Appendix 6.1 – Seascape, and Landscape Character Types: Descriptions and Sensitivity Ratings;
- Technical Appendix 6.2 – Descriptions of Designated and Classified Landscapes: Descriptions and Sensitivity Ratings;
- Technical Appendix 6.3 – Residual Effects on Seascape and Landscape Character Types;
- Technical Appendix 6.4 – Residual Effects on Designated and Classified Landscapes;
- Technical Appendix 6.5 – Viewpoint Assessment;
- Technical Appendix 6.6 – Wild Land Impact Assessment (WLIA); and
- Technical Appendix 6.7 – Residential Visual Amenity Assessment (RVAA)

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

## 6.2 Assessment Methodology

### Study Area

6.2.1 The Study Area comprises a 6 km radius extending from the proposed overhead line (OHL) route. A Study Area of 6 km from the Proposed Alignment in Figure 6.1: Zone of Theoretical Visibility (ZTV) was used for the SLVIA based on previous experience with similar developments elsewhere within Scotland and was agreed in consultation with NatureScot (NS) and Comhairle nan Eilean Siar (CnES).

6.2.2 The cumulative study area includes a radius of 10 km extending from the Proposed Alignment, this was agreed with NatureScot (NS) and Comhairle nan Eilean Siar (CnES) during consultation. This was to include larger scale wind energy development, that would have intervisibility with the Proposed Development, but sit out with the 6 km study area, these include Muaitheabhal Wind Farm, Muaitheabhal South Extension and Muaitheabhal East Extension, all of which are large scale developments within relatively close proximity to the Proposed Development. Moreover, this was based upon similar projects within Scotland of a size and scale of the Proposed Development.

### Scope

6.2.3 The SLVIA considers effects on:

- landscape fabric, caused by the changes to the physical forms of the landscape and its elements;
- seascape, landscape character, designations, and classifications, caused by the changes in the key characteristics and special qualities of the seascape and/or landscape as a result of the Proposed Development (construction of the Proposed Alignment and removal of the existing 132 kV OHL); and
- visual amenity, caused by the changes in views and visual amenity as a result of the Proposed Development, (construction of the Proposed Alignment and removal of the existing 132 kV OHL).

6.2.4 Effects on the landscape fabric occurs when there is a physical change to the components of the landscape such as to landform, land use or landcover. Effects on landscape character arise when there is a change to the key

characteristics and features. Visual effects are a subset of landscape effects and comprise changes in views of the landscape and the overall effects on visual amenity.

- 6.2.5 Whilst there is undoubtedly a relationship between the physical landscape and cultural landscape and landscape of historical importance (e.g., Gardens and Designed Landscapes (GDLs) and on listed buildings and ancient monuments), the SLVIA is concerned with the contribution of such landscapes and features that form the key character and scenic quality of the area. Issues pertaining to archaeological or cultural heritage and consideration of effects on their settings are addressed in Chapter 7: Archaeology and Cultural Heritage (EIAR Volume 2)
- 6.2.6 The SLVIA also assesses cumulative effects (Section 6.10) arising from the addition of the Proposed Development to the baseline of existing, consented, as well as developments 'in-planning' (i.e. which are subject to a valid planning application). Cumulative effects have been assessed in accordance with Section 5.7 of **Chapter 5: Methodology (EIAR Volume 2)** and consideration has been given to all developments listed in Table 12.1 of **Chapter 12: Cumulative Assessment (EIAR Volume 2)**.
- 6.2.7 The scope of this assessment has been informed by consultation responses summarised in **Table 6.1**, below, as well as the following guidelines/ policies:
- Guidelines for Landscape and Visual Impact Assessment – Version 3 (GSLVIA<sup>1</sup>);
  - Landscape Character Assessment<sup>2</sup>;
  - Techniques for Judging Capacity and Sensitivity<sup>3</sup>; and
  - Assessing Effects on Wild Land<sup>4</sup>.

### Consultation Undertaken to Date

Consultation undertaken to date mainly pertains to the EIA Scoping Report. Scoping responses received at the time of writing that are relevant to this chapter are captured in **Table 6.1**. Further information can be found in **Appendix 4.3: Scoping Consultation Register (EIAR Volume 4)**.

**Table 6.1: Scoping responses and other consultation of relevance**

Consultee and Date	Scoping/ Other Consultations	Issue Raised	Response/ Action Taken
Energy Consents Unit (ECU) 11 <sup>th</sup> July 2022	Scoping Opinion	Please note Comhairle nan Eilean Siar Planning Authority's response requesting an additional viewpoint for the landscape and visual impact assessment.	Noted. Based on the final alignment of the Proposed Development (which was amended during scoping), Viewpoint 4 has been amended and is now located at Ardhasaig Pier.  Viewpoint 17 has been added to the SLVIA and is situated at the Pair Land Raiders Cairn.  It should be noted that NatureScot and CnES were informed of these changes through the ECU Gate Check process. CnES responded stating "I confirm that CNES is

<sup>1</sup> Landscape Institute and Institute of Environmental Management and Assessment (2013) Guidance for Landscape and Visual Impact Assessment – Third Edition.

<sup>2</sup> The Countryside Agency and Scottish Natural Heritage (2002) Landscape Character Assessment.

<sup>3</sup> Scottish Natural Heritage and the Countryside Agency (2002) Topic Paper 6: Techniques and Criteria for Judging Capacity and Sensitivity.

<sup>4</sup> Scottish Natural Heritage (September 2020) Consultation on draft guidance: Assessing impacts on Wild Land Areas – technical guidance consultation on draft guidance: Assessing impacts on Wild Land Areas – technical guidance.

**Table 6.1: Scoping responses and other consultation of relevance**

			<p><i>satisfied with what is being proposed in addressing the issues raised in our scoping consultation response. No further information required.</i>". NS have not responded at the time of writing.</p> <p>These viewpoint locations are shown in <b>Figure 6.5 Visual Receptors, ZTV and Viewpoint Locations (EIAR Volume 3a)</b></p>
<p>Comhairle nan Eilean Siar (CnES) 6<sup>th</sup> July 2022</p>	<p>Scoping Response</p>	<p>The Visual Receptors map has Core Footpaths incorrectly annotated as 'Highland Council' Core Paths.</p>	<p>Noted. There was a minor error within the scoping figure. The Outer Hebrides Core Path Plan (Adopted April 2010) has been used within the SLVIA assessment and has been corrected on the associated <b>Figure 6.5 Visual Receptors, ZTV and Viewpoint Locations (EIAR Volume 3a)</b></p>
		<p>Access and Core paths. For clarity it should be noted the Hebridean Way and the Hebridean Cycleway are two separate routes. It is correct to state that the Hebridean Cycleway is no longer classified as National Cycle Route 780 and it is now classified by Sustrans as an "On the road route not on the cycle network".</p>	<p>Noted. These two routes have been assessed separately within the SLVIA chapter.</p>
		<p>It is suggested that, given the planned deviation of the new line from the existing route, the following additional Viewpoint be added at Ardhasaig Pier or Site of Isle of Harris Distillery (IHD) Bonded warehouses (looking east towards the HV Line); Receptors - Villagers and potential visitors to the IHD Bonded Warehouses.</p> <p>It is suggested given the planning policy protection of Commemorative Sites that a viewpoint be added where the overhead line is in close proximity to the Pairc Land Raiders Cairn (on the moorland near the junction of the Eisgean Road with the main road).</p>	<p>Noted. Based on the final alignment of the Proposed Development (which was amended during scoping), Viewpoint 4 has been amended and is now located at Ardhasaig Pier.</p> <p>Viewpoint 17 has been added to the SLVIA and is situated at the Pairc Land Raiders Cairn.</p> <p>These viewpoint locations are shown in <b>Figure 6.5 Visual Receptors, ZTV and Viewpoint Locations (EIAR Volume 3a)</b>.</p>
		<p>The information provided by the developer is adequate and is considered to be sufficient to assess the likely significant effects</p>	<p>Noted.</p>

**Table 6.1: Scoping responses and other consultation of relevance**

		to public access and the long-distance routes.	
		Development Strategy - The overhead line passes through both 'rural settlement' and 'outwith settlement' areas as defined in LDP Policy DS1. Within 'rural settlement' the principal policy objective is to accommodate development to meet sustainable growth for local needs, particularly for residential, agriculture, tourism and service activities. Development proposals will be assessed against a siting and design appropriate to the established rural character and settlement pattern of the local area.	Noted.
		The proposed development crosses numerous landscape character types, which differ slightly from the EIA due to the updated assessment by SNH 2019. These include Gently Sloping Crofting, Rocky Moorland – Outer Hebrides, Linear Crofting and Boggy Moorland – Outer Hebrides. Indirect relevant landscape character types could also include Prominent Hills and Mountains. Policy NBH1 states that development proposals should not have an unacceptable significant landscape or visual impact. If it is assessed that there will be a significant landscape or visual impact, the applicant will be required to provide mitigation measures demonstrating how a satisfactory landscape and visual fit can be achieved. We note that the EIA will incorporate the LCA updated by Scottish Natural Heritage (rebranded NatureScot) in 2019. Consideration of micro siting of trident poles to minimise visual intrusion on key views should be a consideration in the EIA LVIA.	Noted. A detailed assessment of the impact of the Proposed Development on the Landscape Character Areas and Seascape Character Areas has been undertaken, and is presented in detail within <b>Technical Appendix 6.4: Residual Effects on Designated and Classified Landscapes (EIA Volume 4)</b> . Moreover, Section 6.9: Mitigation details imbedded mitigation to reduce the number of potential significant effects.
		There is a Garden and Designed Landscape (GDL) Lews Castle and Lady Lever Park to the north of the proposed development, consideration of any residual effects on this designated site should be addressed by the EIA.	Noted. Lews Castle and Lady Lever Park GDL has been included within the SLVIA assessment. A detailed assessment has been undertaken, which is detailed in <b>Technical Appendix 6.4: Residual Effects on</b>



**Table 6.1: Scoping responses and other consultation of relevance**

			<b>Designated and Classified Landscapes (EIAR Volume 4).</b>
		The route passes through (30) Eisgein Wild Land Area and (31) Harris-Uig Hills Wild Land Area. The EIA should assess whether the proposal will have any unacceptable adverse effects on Wild Land and if required, propose mitigation measures such as undergrounding power lines in sensitive areas.	Noted. The impacts on the two Wild Land Areas within the Study area which include Eisgein and Harris – Uig Hill have been assessed within the SLVIA and are presented on <b>Appendix 6.6: Wild Land Impact Assessment (EIAR Volume 4)</b> .
		The proposed OHL follows the route of the Hebridean Way walking and on-road cycling route along the A859 from Luirbost in Lewis to Groscllett in Harris. In addition, several core paths are located within one kilometre of the proposed development, the OHL also crosses the Aline Woodland Walks. Consideration should be given in the EIA of opportunities for the access routes required for the development to contribute to improvements to, and expansion of the existing path network (including the improvement of access to the Core Path network and Hebridean Way).	Noted.
NatureScot 13 <sup>th</sup> June 2022	Scoping Response	South Lewis, Harris and North Uist National Scenic Area (NSA)  The proposed line overlaps the northern part of the NSA. Effects on the special qualities of the NSA should be assessed, to help inform an assessment of impacts on the overall integrity of the area.  We recommend that the cumulative landscape and visual impact assessment should include developments which are subject to valid applications as well as those which are constructed and approved.	Noted. The South Lewis, Harris and North Uist National Scenic Area has been included within the SLVIA, detailed within <b>Technical Appendix 6.4: Residual Effects on Designated and Classified Landscapes (EIAR Volume 4)</b> .  Cumulative developments that have been included within SLVIA are detailed in <b>Table 6.8</b> , and include existing, in-planning and consented developments within 10 km of the Proposed Development.

### Effects Scoped Out

- 6.2.8 The Proposed Development would not have a fixed operational life as it is assumed to be operational for 40 years or more. Effects associated with the construction phase can be considered to be representative of the worst-case decommissioning effects and therefore decommissioning effects have been scoped out.

## 6.3 Method of Baseline Data Collection

### Desk Study

- 6.3.1 Initially, a desk study was undertaken to establish the baseline context of the Proposed Development. This considered the physical components of the landscape (i.e. landscape fabric) as well as the distinctive recognisable patterns of elements that form the landscape character of the area and of the designated and classified landscapes. Visual elements and receptors/ receptor's locations were also identified including settlements, transportation corridors and recreational trails and summits, as well as specific landscape character types (LCTs) and designated areas.
- 6.3.2 LCTs considered in the baseline and subsequent assessment are derived from NatureScot (2019) Scotland Landscape Character Assessment<sup>5</sup>.
- 6.3.3 The description of landscape designations and classifications contained within the SLVIA are derived from the following publications:
- NatureScot Wild Land Area Descriptions<sup>6</sup>; and
  - Historic Environment Scotland Gardens and Designed Landscape Inventory<sup>7</sup>.
- 6.3.4 Other datasets utilised in the preparation of the SLVIA included:
- Ordnance Survey 1:25,000, 1:50,000 and 1:250,000 mapping;
  - Ordnance Survey 5 m and 50 m Digital Terrain Model;
  - Outer Hebrides Local Development Plan, Supplementary Guidance: Large Scale Wind Energy Development<sup>8</sup>;
  - Scottish Landscape Character Assessment data – NatureScot data sets;
  - Gardens and Designed Landscapes – Historic Environment Scotland datasets<sup>9</sup>;
  - National Scenic Areas – Scottish Government data sets<sup>10</sup>;
  - Wild Land Areas – NatureScot data sets<sup>11</sup>;
  - Road Network – Meridian 2 data; and
  - Cumulative data<sup>12</sup> – Ramboll's own data set.
- 6.3.5 **Figures 6.1 – 6.4 (EIAR Volume 3a)** illustrate the topography, location and extent of seascape and landscape character types, alongside designations and classifications within the Study Area with a Zone of Theoretical Visibility (ZTV) being overlaid to show the extent of intervisibility with the Proposed Development on **Figures 6.1, 6.3b and 6.4b (EIAR Volume 3a)**.

### Field Survey

- 6.3.6 Desktop findings were verified and augmented by targeted field reconnaissance during which all key sensitive receptor locations were visited. During the field reconnaissance draft wirelines, mapping, data systems and augmented tools were utilised to verify theoretical visibility (including cumulative visibility).

<sup>5</sup> NatureScot. 2022. *Scottish Landscape Character Types Map and Descriptions*. [online] Available at: <<https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions>> [Accessed 21 July 2022].

<sup>6</sup> <https://www.nature.scot/doc/wild-land-areas-map-and-descriptions-2014>

<sup>7</sup> <https://www.historicenvironment.scot/advice-and-support/listing-scheduling-and-designations/gardens-and-designed-landscapes/search-for-a-garden-or-landscape/> [retrieved 21/07/2022]

<sup>8</sup> Comhairle nan Eilean Siar (2011) Outer Hebrides Local Development Plan accessed from [cne-siar.gov.uk](http://cne-siar.gov.uk). 2022. [online] Available at: <<https://www.cne-siar.gov.uk/media/7430/large-scale-wind-energy-developments.pdf>> [Accessed 21 July 2022].

<sup>9</sup> Historicenvironment.scot. 2022. *Gardens and Landscapes*. [online *designed*] Available at: <<https://www.historicenvironment.scot/advice-and-support/listing-scheduling-and-designations/gardens-and-designed-landscapes/>> [Accessed 13 September 2022].

<sup>10</sup> 2022. [online] Available at: <<https://www.nature.scot/professional-advice/protected-areas-and-species/protected-areas/national-designations/national-scenic-areas>> [Accessed 13 September 2022].

<sup>11</sup> 2022. [online] Available at: <<https://www.nature.scot/doc/wild-land-areas-map-and-descriptions-2014>> [Accessed 13 September 2022].

<sup>12</sup> This data was compiled by the GIS team within Ramboll, utilising planning information, desktop analysis and local development plans

### Illustrative Materials

- 6.3.7 The SLVIA is illustrated by:
- Zone of Theoretically Visibility (ZTV) plans;
  - Photographs; and
  - Wirelines images, and photomontages
- 6.3.8 All outputs have been prepared in accordance with current best practice comprising the Landscape Institutes (2019) Technical Guidance Note 06/19 – Visual Representation of Development Proposals. Whilst not wholly applicable to the type of development proposed, cognisance was taken of NatureScot’s Visual Representation of Wind Farms – Guidance Version 2.2 (2017).
- 6.3.9 ZTV figures were prepared to assist in the identification of areas from where there is potential visibility of the Proposed Development, illustrated by **Figures 6.1, 6.3b, 6.4b and 6.5 (EIAR Volume 3a)**. The ZTVs are based upon Ordnance Survey (OS) digital terrain data supplied as gridded height data at 5 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 actual visibility on the ground. Where the ZTV shows no visibility, it is predicted that no pole structures would be visible.
- 6.3.10 In order to establish the cumulative theoretical visibility, ZTVs were prepared for other proposed cumulative developments (wind energy development) extending out to 10 km surrounding the Proposed Development using 50 m DTM data. The cumulative ZTV is included within **Figures 6.6a – 6.6d (EIAR Volume 3a)**.

### Limitations and Assumptions

- 6.3.11 The SLVIA has been prepared utilising a pole height of indicative heights (between 8 m – 14 m) + 20% Limit of Deviation (LOD), as this was deemed to represent the most reasonable worst-case scenario. Therefore, any increase in the height of the trident H poles would be unlikely to have any material effect on the assessment.
- 6.3.12 The assessment considers receptors in publicly accessible locations. Where assessment of individual properties has been undertaken this was completed from publicly accessible locations unless access was specifically agreed with property owners.
- 6.3.13 The data used in the completion of the SLVIA has a number of inherent limitations related to data tolerances and levels of accuracy. However, these have been considered within the assessment.
- 6.3.14 The Proposed Development includes horizontal and vertical LODs to allow for the micro-sitting of the proposed pole locations and variation of pole heights (refer to pole schedule provided in **Appendix 2.1 (EIAR Volume 4)**; Detailed Pole Schedule). It must be noted that in determining seascape, landscape and visual effects, the assessment incorporates the likely impact of these changes to pole locations and increase in the overall height.

## 6.4 Method of Assessment

- 6.4.1 The aim of the Seascape Landscape and Visual Impact Assessment is to identify, predict and evaluate potential significant effects arising from the Proposed Development. Wherever possible, identified effects are quantified, but the nature of landscape and visual assessment requires interpretation by professional judgement. In order to provide a level of consistency to the assessment, landscape sensitivity to change, the prediction of magnitude of impact and assessment of significance of the residual effects has been based upon pre-defined criteria, the level of effects being determined by a comparison of sensitivity of receptors and the magnitude of impacts arising from the Proposed Development.
- 6.4.2 The SLVIA considers landscape and visual effects on designated landscape within the Study Area, including South Lewis, Harris & North Uist NSAs. Whilst not landscape designations, a number of sensitive landscape classifications have been assessed, including Wild Land Areas (WLAs) and GDLs.

- 6.4.3 To assist in evaluating the potential seascape, landscape and visual effects arising from the Proposed Development, a ZTV was generated to identify the potential effect of its visibility over the Study Area (**Figure 6.1, EIAR Volume 3a**). An assessment of the predicted visibility of the Proposed Development from each of the LCTs, designated and sensitive non-designated landscapes in the Study Area has been carried out by analysing the ZTV and verifying findings during field reconnaissance (August 2022). The visibility assessment has concentrated on the publicly accessible areas including outdoor recreational areas, cycle routes, roads, and the public footpath network.
- 6.4.4 Mitigation measures which have been incorporated into the final design and layout of the Proposed Development are described, together with a summary of the design optimisation process carried out in parallel with the SLVIA. Further details of the constraints which were identified, and the design process are described in **Chapter 3: Consideration of Alternatives (EIAR Volume 2)**.
- 6.4.5 A selection of representative viewpoints were chosen in consultation with CnES and NS (**Table 6.1**). These viewpoints are considered representative of the main sensitive receptors within the Study Area. The viewpoints have been checked against the cumulative ZTVs for existing/ consented and proposed wind farms alongside transmission and distribution infrastructure within the Study Area to ensure that they do indeed provide representative coverage of the potential cumulative visibility and related effects. Viewpoint locations are detailed in **Technical Appendix 6.6 (EIAR Volume 4)** and their locations are illustrated on **Figure 6.5 (EIAR Volume 3a)**.
- 6.4.6 Analysis of the potential effects on landscape and visual amenity arising from the Proposed Development at each of these viewpoints has been carried out. 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 the viewpoints have been analysed to identify the magnitude of impact and the residual effects on landscape character and visual amenity at each viewpoint location.

#### Criteria for Assessing the Sensitivity of Receptors

- 6.4.7 The sensitivity of the landscape to change is defined as high, medium, or low based on professional interpretation of a combination of its susceptibility to change associated with the type of development proposed, and the value attributed to the landscape. In respect of susceptibility to change, paragraph 5.40 of the GSLVIA<sup>13</sup> notes that:
- 6.4.8 *“This means the ability of the landscape receptor (whether it be the overall character or quality/ condition of a particular character type or area, or an individual element and/ or feature, or a particular aesthetic and perceptual aspect) to accommodate the Proposed Development without undue consequences for the maintenance of the baseline situation and/ or the achievement of landscape planning policies and strategies.”*
- 6.4.9 The following parameters were therefore applied in determining the susceptibility of the landscapes within the Study Area (based on guidance in GLVIA Box 5.1, Page 84):
- Landscape quality;
  - Existing land-use;
  - Scenic Quality;
  - Rarity;
  - Representativeness;
  - Recreational value;
  - Perceptual aspects;
  - The pattern and scale of the landscape;
  - Visual enclosure/ openness of views and distribution of visual receptors;

<sup>13</sup> Landscape Institute and Institute of Environmental Management and Assessment (2013) Guidance for Landscape and Visual Impact Assessment – Third Edition.

- The scope of mitigation, which would be in character with the existing landscape; and
- The degree to which the particular element or characteristic contribution to the landscape character and can be replaced or substituted.

6.4.10 In determining value, the SLVIA uses, as its primary indicator, formal landscape designations. Where other clearly defined indicators were identified, these have also been referred to.

6.4.11 Visual receptor sensitivity is defined as high, medium, or low based on an interpretation of a combination of parameters and relates to the susceptibility and value ascribed to visual receptors or receptor location. The following criteria were utilised in determining viewpoint sensitivity:

- The land use or main activity at the viewpoint/ receptor location and consequent expectations of receptors;
- The frequency and duration of the use of receptor location; and
- The landscape character and quality of the intervening landscape.

6.4.12 In relation to land use at the viewpoint, visual sensitivity is defined in **Table 6.2** below.

<b>Sensitivity</b>	<b>Receptor Type and Activity</b>
High	<ul style="list-style-type: none"> <li>• Tourists and those engaged in outdoor recreational activities for which the landscape and views form a key part of their experience, including hill walkers and visitors to formal vantage points;</li> <li>• Passengers and tourists travelling on key transportation routes;</li> <li>• Passengers on trains and ferries where visual amenity and scenic qualities form an integral part of receptors experience and expectations;</li> <li>• Walkers on strategic recreational footpaths or on hills, cycle routes or rights of way;</li> <li>• Visitors to landscapes/sites that have a strong physical, cultural or historic connection with the landscape or a particular view; and</li> <li>• Residential receptors at individual dwellings and within settlements.</li> </ul>
Medium	<ul style="list-style-type: none"> <li>• Local road users/commuters who are generally travelling alone and/or are focused on the road rather than the adjoining landscape.</li> </ul>
Low	<ul style="list-style-type: none"> <li>• People engaged in outdoor sports or recreation (other than appreciation of the seascape/landscape); and</li> <li>• Receptors located in commercial buildings, industrial complexes, and other locations where people's attention may be focused on their work or activity.</li> </ul>

### Criteria for Assessing the Magnitude of Impact

6.4.13 The magnitude of impact arising from the Proposed Development may be described as substantial, moderate, slight, negligible or none based on the interpretation of a combination of largely quantifiable parameters, as follows:

- the distance of receptors from the Proposed Development;
- the duration of the predicted change and whether it is reversible;
- the size and scale of the change anticipated;
- the geographical extent of the Study Area, landscape and seascape character unit, designation or route that would be affected;
- the angle of view in relation to main receptors activity;
- the degree of contrast;
- the background context of the Proposed Development; and
- the extent and nature of other built development visible, including vertical elements.

6.4.14 The assessment of effects at viewpoints in **Technical Appendix 6.5 (EIAR Volume 4)** quantifies the horizontal angle occupied by the Proposed Development in each view.

6.4.15 **Table 6.3**, below, provides a brief definition for different magnitude of impact.

<b>Table 6.3: Magnitude of Impact</b>	
<b>Magnitude</b>	<b>Definition</b>
Substantial	Total loss or considerable alteration/interruption of key elements, features or characteristics of the landscape character and/or composition of views resulting in a substantial change to baseline conditions.
Medium	Partial loss or alteration to one or more key features or characteristics of the baseline, resulting in a prominent, but localised change within a broader unaltered context.
Slight	Discernible loss or alteration to one or more key elements, features or characteristics of the baseline conditions. Change arising from the loss/alteration would be discernible but underlying landscape character or view composition would be broadly consistent with baseline.
Negligible	Very limited or imperceptible loss or alteration to one or more key elements/characteristics of the baseline. Change may be barely discernible.
None	No aspect of the Proposed Development would be discernible. The Proposed Development would result in no appreciable change to the landscape resource or view.

#### Criteria for Assessing Cumulative Effects

6.4.16 In assessing potential cumulative landscape and visual effects, consideration has been given to cumulative effects arising from combined, consecutive and concurrent visibility (where the observer is able to see two or more developments from one viewpoint location), and sequential effects (where a number of similar developments would be visible over the course of transportation or recreational routes). This is in accordance with current NatureScot guidance<sup>14</sup>.

6.4.17 The cumulative assessment addresses 'in addition' effects (i.e. the additional effect attributed to the Proposed Development in the context of similar cumulative development, as well as its 'in combination' effects (i.e. the total/combined effect of the Proposed Development and other cumulative developments) (as per **Chapter 12: Cumulative Assessment, EIAR Volume 2**).

6.4.18 There are two cumulative scenarios/contexts considered in the cumulative assessment:

- existing and consented (but unbuilt) developments; and
- existing, consented and in-planning developments (developments subject to a formal planning application).

6.4.19 Details of the cumulative developments included in the assessment are set out in **Table 6.8**, along with their status at the time of the LVIA.

6.4.20 **Table 6.4** provides a brief definition for different magnitudes of cumulative impact which have been used as a guide in this assessment.

<b>Table 6.4: Magnitude of Cumulative Impacts</b>	
<b>Magnitude</b>	<b>Definition</b>
Substantial	The Proposed Development would represent a considerable increase in the influence of energy developments on the character of the landscape and/or the composition of views.
Medium	The Proposed Development would represent a notable increase in the influence of energy development on the character of the landscape and/or the composition of views. Moderate cumulative change equates to a localised change within an otherwise unaltered context.

<sup>14</sup> NatureScot. 2022. *Guidance - Assessing the cumulative landscape and visual impact of onshore wind energy developments*. [online] Available at: <<https://www.nature.scot/doc/guidance-assessing-cumulative-landscape-and-visual-impact-onshore-wind-energy-developments>> [Accessed 15 August 2022].

**Table 6.4: Magnitude of Cumulative Impacts**

Slight	The Proposed Development would represent a minor addition to the influence of energy development on the character of the landscape and/or the composition of views. The change would be discernible, but the original baseline conditions would be largely unaltered.
Negligible	The Proposed Development would represent a barely discernible addition to influence of energy development on the character of the landscape and/or the composition of views.
None	No other cumulative development would be apparent.

6.4.21 The cumulative developments considered within this assessment are presented in **Table 6.8** of this chapter and on **Figure 6.6 (EIAR Volume 3a)**.

### Criteria for Assessing Significance

6.4.22 **Table 6.5** illustrates how residual effects are determined by comparing the sensitivity of receptors within the magnitude of predicted impacts. For the purposes of this assessment significant effects are **Major** or **Major/ Moderate**. It should be noted, however, the significance in landscape and visual terms does not necessarily equate to significance or unacceptable effects in planning terms, especially where significant seascape/ landscape or visual effects are highly localised.

**Table 6.5: Residual Effects**

Landscape and Visual Sensitivity	Magnitude of Impact				
	Substantial	Medium	Slight	Negligible	None
High	<b>Major</b>	<b>Major/ Moderate</b>	Moderate	Moderate/ Minor	None
Medium	<b>Major/ Moderate</b>	Moderate	Moderate/ Minor	Minor	None
Low	Moderate	Moderate/ Minor	Minor	Minor/ None	None

6.4.23 In line with the recommendations in the GSLVIA3, the matrix is not used as a prescriptive tool or arithmetically, and the methodology and analysis of potential effects at any particular location must allow for exercise of professional judgement. Descriptions of residual effects, especially those considered significant, are described in narrative text.

6.4.24 Landscape and visual effects can be adverse (i.e., having a detrimental effect on the physical elements, character, and visual amenity of the area) or beneficial (i.e., having a positive effect on the landscape and visual amenity of the area through strengthening or augmentation of baseline conditions and/ or improvement of the existing landscape or views). Moreover, it is also the case that effects will change over time with gradual maturation of mitigation for example, therefore for the purposes of this assessment residual effects are assumed to be adverse. However, as part of Proposed Development, the existing 132 kV OHL would be removed and the landscape fabric reinstated upon the completion of the construction phase of the overall development, this would result in the lessening of these adverse residual effects during the operational phase of the Proposed Development.

## 6.5 Baseline Conditions

### Landscape Baseline

#### Topography

6.5.1 Topography within the Study Area is shown on **Figure 6.2 (EIAR Volume 3a)**.

6.5.2 The landform within the southern section of the Study Area comprises a landscape characterised by individual peaks with pronounced summits, long ridges, and slopes, rising steadily from the surrounding terrain. The An

Cliseam and Beinn Mhor summits are prime examples of this type of characteristic. Steep sided corries and short u-shaped glens form a key integral part of the topography along the southern extent of the route. In areas where the hills and mountains meet the coastline, the deeply indented coastline is dominated by rocky headlands, sea cliffs and the occasional cave.

- 6.5.3 In the north extent of the Study Area, the landform is characterised by smooth dipped slopes which combined with the rocky convexities to form a rocky and stepped landscape. The inland rocky moor tends to merge with the adjacent landscape, where it extends the shoreline, forming a coastline of convex landforms dipping into deep water. The irregular topography of the rocky knolls is interlocked with peaty moorland vegetation and the occasional small lochan in the hollows.

#### *Hydrology*

- 6.5.4 Loch Seaforth, Loch Eireasort, East Loch Tarbert and Loch a' Siar are all key water features within the Study Area boundary, with the Proposed Development being located west of Loch Seaforth and Loch Eireasort, and routing between Loch a' Siar and East Tarbert Loch. Within the Study Area, the water catchment areas vary and include the vast peat moorlands on Lewis that comprise numerous inlets and inland waters, with many hill lochs, boulder-strewn burns and rivers. There are well over 4,000 loch and lochans in the islands in addition to rivers and burns.
- 6.5.5 Within the island there is an extremely high ratio of freshwater to landmass. The lack of any notable tree cover means that rainfall increases surface run-off in the water table, however, the peatlands hold a high reservoir of water, as well as intricate pool systems.
- 6.5.6 On the Isle of Lewis, the main river systems are the Grimersta system, the Creed, Blackwater, Fhorsta, Laxay, Blackwater and Gress.
- 6.5.7 Further details on hydrology are in **Chapter 10: Hydrology, Hydrogeology and Geology and Soils (EIAR Volume 2)**.

#### *Landcover*

- 6.5.8 The landcover within the southern extent of the Study Area due to its high peaks and pronounced summits have very little to no vegetation cover, other than small areas of thin grassland which inhabits the thin soils between outcrops. The lower elevations are dominated by a mixture of low moorland, mixed windswept heather with damp rough grassland which gives a coarse textured surface which is much roughened in places by the presence of large boulders, with the lower slopes eventually merging gently into the surrounding moorlands.
- 6.5.9 In the northern extent of the Study Area, the landcover predominately comprises open moorland and damp, rough grassland which extends, occasionally over rocky knolls. The muted tones of heather moorland vegetation are a subtle mixture of greens, greys and browns. There are occasional areas of forestry, small woodland and/ or shelter planting found throughout the landscape. At the broadest scale there are a few medium scale coniferous forestry plantations. The most notable of a small number of mixed woodlands are the policy woodlands of the designed landscape at Lews Castle and Lady Lever Park, and the coniferous forestry planted at the Aline Community woodland. These woodlands tend to have a high degree of diversity of cover, texture and form, and the strong linear and vertical edges of coniferous forestry contrast with the scale and diversity within the landscape.

#### *Land Use*

- 6.5.10 Throughout the Study Area the main land use varies, with uses including grazing, forestry, angling and peat cutting. In addition, there are two main quarries, the former Bardon Hebrides quarry, which is now Bennadrove Landfill and a recycling point to the northern extent of the Study Area, and the Breedon Cean an Ora Quarry to the southern extent of the Study Area, north of Ardhasaig.
- 6.5.11 Forestry plantations are found along the central extent of the Study Area, to the west and east of the A859 within the Aline Community Woodland. However, much of the forestry appears of poor quality/ diseased with stunted growth. Areas of existing and former peat cuttings are located mainly within close proximity to small settlements along the extent of the Study Area, in areas such as Arivruaich, Balallan, Kinloch, Laxay and Liurbost. In some



area these cuttings appear to have had a noticeable influence on local hydrology, creating localised preferential flow paths along the line of the cuttings.

6.5.12 Within the study area and in close proximity to the Proposed Alignment, there are a number of existing transmission and distribution OHLs which traverse the landscape, particularly in close proximity to the A859 road corridor. These include two distribution OHLs (33 kV and 11 kV) and one transmission OHL (132 kV), all of which comprise single or double wood pole structures.

#### *Settlement*

6.5.13 Tarbert and Stornoway are the main settlements within the study, situated to the southernmost extent and north most extent respectively. The southernmost extent of the Study Area is largely uninhabited, with exception to the settlement of Tarbert and a handful of small, isolated properties, which historically provided shelter for those working on the surrounding open hill moorland, tending to their animals. Traditional paths and routes cross the lower slopes and passes of the adjacent mountains, often marked by set stones or cairns, providing key marker points for those travelling north/ south from Tarbert to Stornoway.

6.5.14 Stornoway exhibits some of the characteristics of an urban, rather than a rural settlement, notably a higher density of population. Stornoway forms two distinct areas, the original central core and the later area of urban expansion, or urban fringe. The central part of Stornoway is characterised by a recognisable core of narrow streets, set out on a grid plan. Views along these streets frequently focus towards the harbour, increasing the town's relationship with the sea. Beyond the urban core is an area of urban expansion, characterised by a mix of Local Authority and private housing. The pattern of settlement in this area is less dense, dwellings exhibit a greater range of scale, form and building materials and wider roads tend to predominate.

#### **Transport**

6.5.15 Due to the nature of topography within the Study Area, specifically in the southernmost extent, there are few transport corridors which pass through the Study Area. Those present, however, include the A859, A868, A858, B897, B8060, B997 and the Uig to Tarbert Ferry, with the A859 being the main trunk road that traverses the landscape from the southernmost to northernmost point of the Study Area. A small number of unclassified roads provide connections to small clusters of settlements and properties; however, due to topography and climatic conditions these tend to be limited in number and are situated in close proximity to other main roads such as the A859.

#### *Landscape Character*

6.5.16 **Figure 6.3a (EIAR Volume 3a)** shows the location and extent of the Landscape Character Types (LCTs) and Seascape Character Types (SCTs) within the SLVIA Study Area along with the theoretical viewshed for the Proposed Development.

6.5.17 Both the 2019 NatureScot Landscape Character Assessment and NatureScot's Commissioned Report No.103: Description of Coastal Character Types<sup>15</sup> have been used for the purposes of this assessment. Those LCTs and SCTs which are found within the Study Area and which, according to the ZTV in **Figures 6.3a and 6.3b (EIAR Volume 3a)** would be liable to theoretical visibility of the Proposed Development include:

- LCT 323 – Rocky Moorland – Outer Hebrides;
- LCT 319 – Dispersed Crofting;
- LCT 324 – Cnoc and Lochan;
- LCT 327 – Rounded Rocky Hills;
- LCT 326 – Prominent Hills and Mountains;

<sup>15</sup> Based on the finding of Scott, K.E., Anderson, C., Dunsford, H., Benson, J.F. and MacFarlane, R. (2005) – An assessment of sensitivity and capacity of the Scottish Seascape in relation to offshore windfarms. Scottish Natural Heritage Commission Report No. 103 (ROAME No. F03AA06).

- LCT 318 – Linear Crofting;
- LCT 321 – Machair;
- LCT 322 – Boggy Moorland – Outer Hebrides;
- LCT 317 – Gently Sloping Crofting;
- SCT13 – Low Rocky Island Coasts;
- SCT12 – Deposition Coasts and Islands; and
- SCT 09 – Sounds, Narrows and Islands

6.5.18 Table 6.2.1 in **Technical Appendix 6.1 (EIAR Volume 4)** provides a description of each of the LCTs and SCTs. Once the Proposed Alignment has been constructed, the existing 132 kV OHL would be removed and the landscape fabric reinstated. It is anticipated that intervisibility with the above LCTs and SCTs would be similar to that of the existing 132 kV OHL, albeit it with the temporary concentration of OHL infrastructure during the construction period.

#### *Landscape Designations and Classifications*

6.5.19 The locations and extent of landscape designations and classifications which would have theoretical visibility of the Proposed Development are shown in **Figure 6.4b (EIAR Volume 3a)**. It must be noted as part of the Proposed Development, the existing 132 kV OHL would be removed upon completion of the construction phase of the development, leading to a temporary increase in the concentration of OHL development, however, this would be limited to the construction phase of development, reducing during the operational phase, once the removal and reinstatement of the existing OHL is complete. The key characteristics and sensitivity ratings for included designations and classifications are set out in **Table 6.6** below. For the purposes of the SLVIA, the identified designations have been assumed to have a High sensitivity (i.e., High Value and High susceptibility to the type of development proposed).

<b>Table 6.6: Landscape Designations and Classifications</b>			
<b>Designation / Landscape Classification</b>	<b>Approximate distance and direction from the Proposed Development</b>	<b>Key Characteristics</b>	<b>Sensitivity rating</b>
<b>National Scenic Area (NSA)</b>			
South Lewis, Harris and North Uist National Scenic Area (NSA)	The southernmost extent of the Proposed Development lies within this designation area	Scenic landscape with a striking contrast between the subdued topography of most of Lewis and the bold rugged hills of South Lewis. Some of the NSA's special qualities include: <ul style="list-style-type: none"> <li>• the wild, mountainous character;</li> <li>• deep sea lochs that penetrate the hillsides;</li> <li>• extensive machair and dune system with expansive beaches;</li> <li>• the close interplay of the natural world, settlement and culture; and</li> <li>• the dominance of the weather</li> </ul>	Sensitivity: High Value: High Susceptibility: High
<b>Gardens and Designed Landscapes (GDLs)</b>			
Lewis Castle and Lady Lever Park GDL	300 m Northeast	A prime example of mid-late 19 <sup>th</sup> century ornamental and estate landscape, rare on Lewis, laid out with coastal and riverside carriage drives and walks. The designed landscape comprises a series of distinctive wooded parklands contrasting	Sensitivity: High Value: High Susceptibility: High

<b>Table 6.6: Landscape Designations and Classifications</b>			
<b>Designation / Landscape Classification</b>	<b>Approximate distance and direction from the Proposed Development</b>	<b>Key Characteristics</b>	<b>Sensitivity rating</b>
		dramatically with the prevailing openness of the island landscape.	
<b>Wild Land Areas (WLAs)</b>			
(30) Eisgein Wild Land Area	1.4 km East	Key attributes and qualities of the Eisgein WLA include: <ul style="list-style-type: none"> <li>• a very remote area with challenging access over a rugged landform, few visitors, and a strong sense of sanctuary and solitude;</li> <li>• a strong influence of the sea across the area, including an indented, rugged coast, long sea lochs and a distant sea backcloth, contributing to perceived naturalness and awe; and</li> <li>• a simple and wide expanse of peatland and hills at the broad scale, containing a very rugged landform at the local level, with a strong sense of naturalness.</li> </ul>	Sensitivity: High Value: High Susceptibility: High
(31) Harris – Uig Hills	450 m North/ Northwest	Key attributes and qualities of the Harris - Uig WLA include: <ul style="list-style-type: none"> <li>• a rugged west coast with awe-inspiring landform features, that combine with the sea to increase remoteness and the perceived naturalness and extent of Study Area;</li> <li>• awe-inspiring, towering, irregular, rocky mountains that adjoin low-lying peatland or the sea, offering panoramic views and possessing a strong sense of naturalness; and</li> <li>• extensive peatland that is simple at a broad scale, but interwoven with a complex pattern of lochs, lochans, pools and bogs at the local level that highlight the rugged nature of the landform and limited access.</li> </ul>	Sensitivity: High Value: High Susceptibility: High

### Visual Baseline

6.5.20 Visual receptors are individuals or defined groups of people whose visual amenity or viewing experience may be affected by the Proposed Development, including:

- Residents and visitors to settlements and individual scattered residential properties;
- Tourists and commuters using the road network;
- Tourists visiting cultural heritage locations, visitor attractions based on interpretation of landscape and vantage points;
- Walkers on long range recreational trails including Public Rights of Ways and Core Paths;
- Cyclists on national cycleways; and
- Hill walkers.

6.5.21 Where distances to the Proposed Development are noted, these distances are measured from the visual receptor to the closest pole location. Although the overhead lines would be visible, the poles would form the largest most prominent part of the Proposed Development and would be visible from greater distances.

#### *Settlements*

6.5.22 Settlements within the Study Area are concentrated along the A859 transport corridor, routing between Tarbert to the south and Stornoway to the north. The steep and massive vertical scale of the surrounding topography, particularly in the south/ central extent of the Study Area has dictated the size and location of these settlements. Those with theoretical intervisibility with the Proposed Development, comprise the following:

- Stornoway – Represents the largest settlement within Lewis and is located to the northernmost extent of the Study Area, to the northeast of Cala Steornabhaigh Bay, 1.9 km to the northeast of the Proposed Development;
- Tarbert – Located to the southernmost point of the Study Area, within a topographical low point, flanked by the East Loch Tarbert to the east and Loch a' Siar to the west. The Proposed Development traverses the settlement, extending across the A859 and Old Pier Road;
- Balallan – Situated along the A859 road corridor, to the west/ northwest of Loch Eireasort, and at its closest point is around 150 m south of the Proposed Development the southern slopes of Cnoc an Isein and Beinn Fheilghean Mor;
- Ardhasaig – A small settlement of properties located along a small rocky outcrop on the lower slopes of Gillaval Dubh, the majority of residential properties are located along the A859 road, with a handful of isolated properties found in lower elevation near Cnoc Buidhe. The Proposed Development is located on the eastern fringes of the settlement, albeit at a high elevation along the upper slopes of Gillaval Dubh, before routing downhill towards the northern extent of the settlement, in close proximity to Loch a' Siar;
- Maraig – A series of small dwellings located on the northern shoreline of Loch Mharaig, the Proposed Development is located 1.1 km northwest/ west of the settlement;
- Diraclett – A collection of isolated properties located along a small unclassified road, which extends south-eastwards from the A859 road corridor, the Proposed Development at its closest point is situated 800 m west/ northwest;
- Luirbost – The small settlement of Luirbost is situated to the east and west of the A859 road corridor and north and south of the Luirbost road, the Proposed Development is situated 700 m east; and
- Laxay – The settlement comprises a collection of dwellings situated to the north and south of the A859 road and north of Loch Eireasort, the Proposed Development is located 500 m north/ northwest of the settlement.

6.5.23 Views from residential properties within settlements have a high degree of consistency, the same views being obtained daily, and often from the same part of properties as well as public realm locations. The value attached to these views is considered high, and the susceptibility of receptors to the type of development being proposed is judged to be high. The sensitivity of all residential receptors within settlements is therefore considered high.

6.5.24 Throughout the rest of the Study Area settlement is sparse and scattered. Dispersed hamlets, farmsteads and individual properties are generally located along small single-track roads extending from the main A859 transport corridor. There is no settlement across the upper elevations and mountain tops.

6.5.25 A detailed search was undertaken to identify those residential properties within 150 m of the Proposed Development and an assessment of the effects on visual amenity of these properties has been undertaken (**TA 6.8: Residential Visual Amenity Assessment (RVAA), EIAR Volume 4**). The methodology and approach of the RVAA was consulted with CnES and NatureScot (NS).

### *Transport Routes*

6.5.26 Transport routes across the Study Area are generally aligned to glens, valleys and loch shores (see **Figure 6.5, EIAR Volume 3a**). According to the ZTV theoretical visibility of the Proposed Development would be possible from the following routes:

- A859 – The A859 road corridor, is the main road from Stornoway on Lewis to Leverburgh on Harris and then onto the end of the island at Rodel. The road generally has open and expansive views, with some topographical enclosure north of Tarbert, west of Loch Seaforth.
- B897 – The B897 is a winding, single-track B road on the isle of Lewis. The road was originally unclassified but gained its current number in 1932. The road is generally open, with view southwards, the Arnish Moor Wind Farm is evident from the north near the A859 junction.
- A858 – The A858 is a c-shaped road on the Isle of Lewis. It is approximately 28 miles long and, following the rerouting in 2005, is now two lanes wide through as it serves the scattered communities of west Lewis.
- B8060 – The B8060 links the A859 and the South Lochs District of Lewis. The road commences at the South Loch at the southern end of the township of Balallan and ends at Lemradhagh.
- A868 – The A868 is a small road which routes from the A859 down to the pier in Tarbert on Harris. It is this pier that the Uig – Harris Ferry service uses, after crossing The Minch from Skye.
- B887 – The B887 is approximately 13 miles long, the road commences at a junction with the A859 road near Ardhasaig, quickly winding around the head of Loch Bun Abhainn; and
- Uig to Tarbert Ferry – The Uig – Tarbert ferry docks to the east of Tarbert, and is a frequent, well used, ferry service, linking the isles to the mainland, with various crossings per day.

### *Recreational Receptors*

6.5.27 The “on the road route not on cycle network” route forms part of the Hebridean Way long-distance cycle route that connects Castle Bay on Harris to the south to Port of Ness on Lewis to the north. The route traverses the landscape utilising the A859 transport corridor, entering the Study Area to the north near Stornoway, before existing the southernmost point near Crose-Clett. The Proposed Alignment, at its closest point is <150 m away from the route, particularly near Arivruaich and Ardhasaig.

6.5.28 The Hebridean Way walking route, similar to the NCN Route 780, starts in Castle Bay in the far south of Harris, traversing the landscape to the northernmost point near Port of Ness on Lewis. The route enters the southernmost extent of the Study Area near Crose-Clett flanking the A859 transport corridor, before exiting the Study Area and later joining the Timeless Way towards Stornoway.

Within the Study Area there is a network of Outer Hebrides Adopted Core Paths (See **Figure 6.5, EIAR Volume 3a**). Those paths which would have theoretical intervisibility with the Proposed Development Include:

- Core Path 6 – Lews Castle Grounds Path – This walking route is located within the Lews Castle Grounds GDL and is extensively screened with mature vegetation, with several elevated hills which extends views out , mainly focused on the sea to the east. To the southwest from elevated locations within the GDL, the existing 33 kV and 132 kV OHLs alongside the Arnish Moor Wind Farm and the single turbine Creed Wind Farm are clearly evident within the view, adding to the human interventions within the landscape;
- Core Path 10 – Mhiabhaig – Bhiogiadail Route – This core path routes northwards from the A887 near Loch Mhiabhaig, the route is strongly contained to the east and west by the topography of Gleann Mhiabhaig. As the route heads north near Loch Bhoisimid, it take a direct turn eastwards towards Loch Seaforth. The route is primarily through enclosed glens, with Eilean Shiphirt forming the key element in views eastwards. In views to the east, there are a number of existing OHLs which traverse the landscape to the west and east of the A859 road corridor, these include an existing 132 kV and 33 kV OHL;
- Core Path 11 – Urgha – Maraig – The core path as it lies within the Study Area extends northwards from Urgha Beag, proceeding northwards along the western shoreline of Lochan Laqadail, before outfalling near

the small settlement of Maraig to the west of Loch Maraig. Views within the southern and central extent of the path are heavily contained due to the extent of topography to the east and west. To the northern most extent of the route near Maraig, there are a number of existing OHLs within views to the north and northwest, all of which traverse the landscape within relatively close proximity to the core path, these include a 132 kV transmission line and two distribution lines (11 kV and 33 kV OHLs);

- Core Path 13 – Direcleit Circular Route – This route forms a continuous loop to the south of Tarbert, with Loch Direcleit forming the main focal/ centre point of the route. Due to the lack of any notable vegetation surrounding the route, views tend to be open and exposed, with a strong relationship with the coastline to the east. From the western most extent of the core path there are a number of existing OHLs visible traversing across the rocky outcrops and more elevated ridgelines above the A859 road corridor, these include an existing 132 kV transmission line and two distribution lines (11 kV and 33 kV OHLs); and
- Core Path 14 – Seilebost – Aird Mhighe – This route is located within the southernmost extent of the study area, south of the A859 road corridor near Uabhal Beag. The route is generally open with panoramic views to the south/ southwest, with the landcover being dominated by undulating moorland interspersed by rocky knolls. In views from the southeastern most extent of the core path, there would be a series of existing OHLs visible, these include an existing 132 kV transmission line and two distribution lines (11 kV and 33 kV OHLs), alongside the Harris Substation, all of which increases the extent of human intervention within the view from this isolated section of the core path.

6.5.29 Cala Steornabhaig, Loch Seaford, East Loch Tarbert and Loch a’ Siar are popular areas for water sport enthusiasts and at their closest, are situated approximately 1.7 km east, 300 m east, 400 m southeast and 250 m southeast, respectively.

6.5.30 High value views within the Study Area which are considered include:

- open and panoramic views from with Lews Castle Grounds from a series of vantage points upon elevation positions such as Cnoc na Croich;
- views from key cultural attractions such as Pairc Land Raiders Cairn and Bonnie Prince Charlie Monument;
- elevated views from mountain summits in the south of the Study Area including the summit of An Cliseam; and
- views from a series of key routes (transport, core path, Hebridean Way and the “on the road not on cycle network” route), encompassing a wide array of receptors including cyclists, walker, commuters, tourists and residential properties.

6.5.31 The SLVIA also considers impacts on hill walkers including the experience of the journey along key walking routes and the approach to (and view from) key summits. This is included as part of the viewpoint assessment (see **Table 6.7 and Technical Appendix 6.6: Viewpoint Assessment, EIAR Volume 4**).

#### *Viewpoints*

6.5.32 Only those receptors with the potential for intervisibility (as indicated by the ZTV) have been included within the SLVIA assessment. These viewpoint locations were selected in close consultation with CnES and NatureScot.

6.5.33 SLVIA findings were verified using seventeen assessment viewpoints (VPs) which have been selected to investigate the visibility and appearance of the Proposed Development from a range of receptors locations within the Study Area boundary. These viewpoints are listed and described in **Table 6.7** below, along with details of the landscape and visual receptors they represent, and the location of each VP location is shown in **Figure 6.5, EIAR Volume 3a**.

6.5.34 **Table 6.7**, below, sets out the list of representative viewpoints along with details of the receptors present at the locations given.

**Table 6.7: Viewpoint Locations**

<b>VP Ref</b>	<b>VP Name</b>	<b>Co-ordinates (x, y) Distance and direction from Proposed Development</b>	<b>Landscape Receptors at Location</b>	<b>Visual Receptors at Location</b>
VP1	A859 Layby (northeast of Loch Strath Steachran)	113406, 894398 93 m southwest	Rocky Moorland – Outer Hebrides, Prominent Hill and Mountains LCTs and the South Lewis, Harris and North Uist National Scenic Area (NSA)	Tourist, Road User and Recreational Users
VP2	Layby A859 (northwest Tarbert)	114983, 900305 226 m west	Linear Crofting LCT and the South Lewis, Harris and North Uist NSA	Tourist, Road User, Recreational Users and Residential
VP3	Junction between A859 and A868 (Tarbert)	115359, 899989 242 m east	Rocky Moorland – Outer Hebrides, Linear Crofting LCT and the South Lewis, Harris and North Uist NSA	Tourist, Road User, Ferry Passengers and Residential
VP4	Ardhasaig Pier	112905, 903162 137 m west	Rocky Moorland – Outer Hebrides LCT and the South Lewis, Harris and North Uist NSA	Tourist, Road User and Residential
VP5	Cliseam Car Park	117379, 905716 310 m east	Prominent Hills and Mountains LCT and the South Lewis, Harris and North Uist NSA	Tourist, Road User and Recreational Users (Hill Walkers)
VP6	Summit of An Cliseam	115447, 907322 2.072 km west	Prominent Hills and Mountains LCT, Harris – Uig Hill WLA and the South Lewis, Harris and North Uist NSA	Tourist and Recreational Users (Hill Walkers)
VP7	Viewpoint (Loch Seaforth)	120521, 912489 185 m east	Boggy Moorland – Outer Hebrides LCT, Prominent Hills and Mountains LCT and the South Lewis, Harris and North Uist NSA	Tourist and Road Users
VP8	Bogha Glas Car Park	118593, 911532 90 m west	Linear Crofting LCT, Prominent Hill and Mountains and the South Lewis, Harris and North Uist NSA	Tourist, Road User, Recreational Users and Residential
VP9	Aline Community Woodland (car park)	121726, 915266 202 m west	Boggy Moorland – Outer Hebrides LCT and Rocky Moorland – Outer Hebrides LCT	Tourist, Road User and Recreational Users
VP10	Bonnie Prince Charlie Monument (Arivruaich)	125073, 917650 784 m west	Gently Sloping Crofting LCT	Tourist, Road User and Residential

<b>VP Ref</b>	<b>VP Name</b>	<b>Co-ordinates (x, y) Distance and direction from Proposed Development</b>	<b>Landscape Receptors at Location</b>	<b>Visual Receptors at Location</b>
VP11	Balallan Post Office	127672, 920494 157 m west	Gently Sloping Crofting LCT	Tourist, Road User and Residential
VP12	Laxay	133010, 922142 167 m north	Gently Sloping Crofting LCT	Road User and Residential
VP13	Luirbost (Village Green)	135453, 927321 583 m west	Linear Crofting LCT and Boggy Moorland – Outer Hebrides LCT	Tourist, Road User and Residential
VP14	Luirbost (West)	134617, 927451 175 m west	Boggy Moorland – Outer Hebrides LCT	Tourist, Road User and Residential
VP15	Cnoc na Croich	141694, 932349 1.503 km east/northeast	Boddy Moorland – Outer Hebrides LCT and Lews Castle and Lady Lever Park GDL	Tourist and recreational users
VP16	Junction of B897 and A859	138569, 930592 315 m north/northwest	Boggy Moorland – Outer Hebrides LCT	Tourist and Road Users
VP17	Pairc Land Raiders Cairn	126058, 919536 140 m west/northwest	Rocky Moorland – Outer Hebrides LCT	Tourist and Road Users

#### *Cumulative Context*

6.5.35 **Table 6.8** below, presents a full list of cumulative development within 10 km of the Proposed Development. These are presented on **Figure 6.6 (EIAR Volume 3a)**.

6.5.36 For the purposes of the SLVIA, and in order to keep the assessment proportionate, only those cumulative developments associated with wind energy and electrical infrastructure, and which are considered to contribute to potentially significant cumulative effects have been included.

6.5.37 **Table 6.8**, below, summarises those cumulative developments within 10 km of the Proposed Development which have been considered within the SLVIA.

<b>Status</b>	<b>Name of Development</b>	<b>Development Type</b>	<b>Distance and Direction from the Proposed Alignment</b>	<b>Comparative Distance and Direction from the existing 132 kV OHL</b>
<b>Operational/ Under Construction</b>	Arnish Moor	Wind Farm	1.179 km East	1.039 km East
	Lemreway Wind Turbine	Wind Turbine	9.623 km East	9.527 km East
	Beinn Ghrideag	Wind Farm	2.665 km North/ Northwest	2.698 km North/ Northwest
	Pentland Road Wind Farm	Wind Farm	4.654 km North/ Northwest	4.690 km North/ Northwest



<b>Table 6.8: Cumulative Development Context</b>				
<b>Status</b>	<b>Name of Development</b>	<b>Development Type</b>	<b>Distance and Direction from the Proposed Alignment</b>	<b>Comparative Distance and Direction from the existing 132 kV OHL</b>
	Creed	Wind Turbine	704 m East	679 m East
	Bridge Cottages	Wind Turbine	4.765 km Northeast	4.709 km Northeast
	Monan Hill Wind Turbines	Wind Farm	331 m Northwest	340 m Northwest
	33 kV OHL	Overhead Distribution Line	At its closest point adjacent to the Proposed Development (approximately 10 m)	At its closest point adjacent to the Proposed Development (approximately 13 m)
	11 kV OHL	Overhead Distribution Line	At its closest point adjacent to the Proposed Development (approximately 10 m)	At its closest point adjacent to the Proposed Development (approximately 13 m)
<b>Consented</b>	Stornoway Windfarm	Wind Farm	1.294 km North/ Northwest	850 m North/ Northwest
	Muaitheabhal Wind Farm	Wind Farm	6.679 km East	6.586 km East
	Muaitheabhal East Extension	Wind Farm	8.213 km East	7.705 km East
	Muaitheabhal South Extension	Wind Farm	7.505 km East	7.477 km East
	Beinn Thulabaigh Wind Turbine	Wind Turbine	4.178 km North/ Northwest	4.214 km North/ Northwest
<b>In-Planning</b>	Aignish Community Wind Farm	Wind Farm	403 m North/ Northwest	489 m North/ Northwest

#### *Future Baseline*

- 6.5.38 In addition to the cumulative developments in **Table 6.8**, above, the assessment considers the implications of the felling of commercial forestry within and adjacent to the Proposed Alignment LOD and the consequent changes to predicted seascape landscape and visual baseline.
- 6.5.39 Out with the immediate alignment area, the greatest changes taking place in the future are likely to arise from changes in settlement pattern, improvements to road infrastructure, introduction of wind farms and the expansion of power transmission infrastructure.
- 6.5.40 In the absence of the Proposed Development and without dramatic changes to policy or economic drivers in the area, the established trends in respect of land use/ land cover and the baseline landscape and visual context will remain largely unchanged from those currently present.

#### **Effects Scoped out**

- 6.5.41 Effects related to the decommissioning of the Proposed Development were not assessed within the SLVIA as such effects are anticipated to be equivalent to, or possibly less than, those expected to occur during its construction.

## 6.6 Assessment of Likely Effects

6.6.1 The layout and design of the Proposed Development are described in **Chapter 2: Description of Development (EIAR Volume 2)** and illustrated on **Figures 2.1 to 2.3 (EIAR Volume 3a)**.

6.6.2 The main components of the Proposed Development with the potential to affect the seascape, landscape and visual resource within the Study Area include those related to construction, removal of the existing 132 kV OHL and the operational phase of the Proposed Development.

### *Potential Construction Effects*

6.6.3 During the construction of the Proposed Development (30-month period, commencing in February 2024) the following elements have the potential to result in effects on the landscape fabric within the Site, as well as the landscape character and/ or the visual amenity of the immediate area within/ surrounding the Proposed Development and the wider Study Area:

- Vegetation clearance within/ near the Proposed Development;
- Upgrading of existing or establishment of new junction bellmouths;
- Establishment of/ reinstatement of temporary site compounds;
- Excavation and construction of trident H pole foundations;
- Erection of trident H poles;
- HGV and abnormal load deliveries to the site area and movement of vehicles/ equipment on site; and
- Reinstatement work, including removal of temporary site compounds and existing 132 kV OHL, with the reinstatement of any disturbed areas to their original condition where possible. Alongside this, measures will be undertaken to ensure access to road and any other public/ private crossing during the construction phase of the Proposed Alignment.

6.6.4 Most of the effects during the construction phase of the Proposed Development relate to the disturbance of the existing landcover within the immediate area within and surrounding the Proposed Development, with the potential for long term change or loss of characteristic vegetation with consequent effects on the character and amenity of the development corridor and the adjoining landscape. However, a large proportion of the construction effects would be managed through the adoption of good practice and careful construction management and monitoring regimes, which would be implemented via the CEMP.

6.6.5 Despite the phased manner of the construction phase and construction activities of the Proposed Development, short term significant effects are anticipated on the landscape fabric, primarily within the Proposed Development alignment/ track network footprint and on the immediate area within the host LCT. These would be primarily associated with the consequent temporary loss of characteristic vegetation cover. Although, it must be noted these types of activities are not uncharacteristic within the northern most LCTs with the presence of peat cutting, however, these activities tend to be of a small, localised nature.

### *Potential Cumulative Construction Effects*

6.6.6 Potential inter-cumulative effects would arise as a result of the Proposed Development in-addition and in-combination with the existing, consented and in-planning development within the Study Area, which include OHL infrastructure and wind energy development.

6.6.7 The following elements and activities associated with the construction phase of the cumulative developments which have the potential to result in significant in-addition or in-combination cumulative construction effects on the landscape and visual amenity of the Study Area:

- Site clearances, partially to the northern most extent of the Proposed Development, where the consented Stornoway Wind Farm and Beinn Thulabaigh wind turbine, the existing Pentland Road wind turbine, Beinn Chrìdeag, Arnish Moor wind farms and the northern most section of the 33 kV and 11 kV OHL are all located in close relatively close proximity.

- Excavation of the existing ground for the Stornoway Wind Farm and Beinn Thulabaigh wind turbine to the north of the Study Area, and Muaitheabhal Wind Farm and Muaitheabhal South Extension to the east of the central extent of the Study Area;
- Installation of new tracks for the Proposed Development, Stornoway Wind Farm and Beinn Thulabaigh wind turbine to the north of the Study Area, and Muaitheabhal Wind Farm and Muaitheabhal South Extension to the east of the central extent of the Study Area;
- Loss of vegetation with the construction of cumulative developments, with consequent construction of wind turbines for the Stornoway Wind Farm and Beinn Thulabaigh wind turbine to the north of the Study Area, and Muaitheabhal Wind Farm and Muaitheabhal South Extension to the east of the central extent of the Study Area;
- Presence of construction activity (including movement) and construction equipment such as excavators, tractors, cranes, helicopters and scaffold tunnels.

6.6.8 It is conceivable that some the developments listed in **Table 6.8**, above, would be constructed at the same time or overlap with the construction period of the Proposed Development. In which case there is potential for some cumulative construction impacts on the landscape fabric, landscape character and effects on the visual amenity resource, particularly in and around the northern most extent and eastern extent of the Study Area. Such effects would, however, be of relative short duration and partly reversible upon cessation of construction operations and are therefore not anticipated to be significant. It must be noted that timescales for cumulative developments are not clear, so no detailed cumulative assessment has been undertaken.

*Potential Operational Effects*

6.6.9 For the purposes of the SLVIA the Proposed Development is assumed to be permanent (i.e. of 40 years duration or more). The operational elements with the potential to affect the landscape and visual amenity of the Study Area are:

- 671 self-supporting Trident 'H' poles, that are between 8 m and 14 m in indicative height (as detailed in paragraph 6.3.11) and separated by an average span length of 80 m;
- Ancillary works for the maintenance of the OHL, including:
  - tree and vegetation clearance and maintenance; and
  - maintenance of junction bell-mouths and access tracks.

6.6.10 Effects arising during the operational period of the Proposed Development would mainly arise from the pole structures, which represent the most visible and prominent aspects of the operational development. However, as described above, as part of the Proposed Development, the existing 132 kV OHL would be removed with the landscape fabric being reinstated upon the completion of the Proposed Alignment, this would lead to a temporary increase (maximum 1 year) in the concentration of OHL developments, before reducing down to the original baseline of one transmission line and two distribution lines.

*Potential Cumulative Operational Effects*

6.6.11 The following elements and activities associated with the operational period of the cumulative development which have the potential to result in locally significant inter-cumulative effects on the landscape and visual amenity of the Study Area are:

- the presence of additional OHL infrastructure within the landscape, adjacent to the A859, albeit temporarily, limited to the construction phase of the project, with the removal of the existing 132 kV OHL reducing the concentration of development during the operational phase;
- the presence of wind turbines in relative proximity to the northern most and central eastern most extent of the Study Area; and
- disturbance, movement, and activity associated with maintenance activities.

- 6.6.12 Significant effects arising during the operational phase of the associated cumulative developments, in addition to the Proposed Alignment, could arise from the new permanent trident poles as they represent the most visible components of the Proposed Development. However, it must be noted adjacent to the Proposed Alignment the existing 132 kV OHL would be dismantled as part of the overall development. The effects are mostly concentrated along the A859 road corridor and towards the northern extent of the Study Area, where cumulative developments and the Proposed Development are all located within a relatively confined area. However, these potential significant effects would be highly localised in close proximity to the A859 road corridor, and with weathering of the poles and the backclothing afforded by the surrounding landscape their visibility would reduce over time.
- 6.6.13 Potential cumulative effects would arise as a result of the Proposed Development in-addition and in-combination, with the operational, consented and in-planning wind farm developments within the Study Area. Two scenarios are used to assess cumulative effects: in-addition cumulative effects and in-combination cumulative effect. In-addition cumulative effects are anticipated with the Proposed Alignment and the three existing 132 kV, 11 kV and 33 kV OHLs which traverse the landscape adjacent to the A859 road corridor, however, it must be noted the existing 132 kV would only contribute to in-addition cumulative effects during the construction phase of the Proposed Development, and would be removed upon completion of the Proposed Alignment. In-combination effects are likely to occur with the Proposed Development, Stornoway Wind Farm, Beinn Thulabaigh wind turbine, Muaitheabhal and Muaitheabhal South Extension, with a concentration of development to the north and central eastern extent of the Study Area.

## 6.7 Mitigation

- 6.7.1 Based on an analysis of the baseline context and sensitive receptors, and the preceding analysis of potential sources of significant effects, a series of embedded and additional mitigation measures have been proposed for the construction and operational phases of the Proposed Development.

### Mitigation During Construction

- 6.7.2 The location and management of the construction elements have been carefully considered to minimise effects including potential landscape and visual effects during the construction stage. Additionally, the following general precautionary measures would be adopted to minimise the landscape and visual effects:
- All working areas would be restricted as far as practical to the specified areas and demarcated to prevent incursion of the site plant/ materials into non-construction areas;
  - Material storage/ temporary stockpiles would be retained for the shortest duration practicable. They would be sited to avoid visual intrusion to neighbouring receptor locations and would avoid skylining in views from the neighbouring low-lying locations such as the A859 and along the banks of Loch Seaforth and Loch Eireasort;
  - Where they occur, peat materials would be excavated and replaced directly, wherever practicable to avoid double handling, reduce vehicular movement, and reduce the potential drying and oxidisation of the peat resource with the alignment corridor. Where this is not possible, peat would be stored in accordance with **EIAR Volume 4: Technical Appendix 10.2: Peat Management Plan**.
  - Temporary site compounds would be reinstated prior to the commencement of the operational phase of the development to avoid unnecessarily retaining restoration materials on site over the operational period and to avoid sustained effects on the landscape fabric, character and visual amenity of the landscape;
  - The excavations for the pole foundations, lay down areas and temporary track would be reinstated prior to the commencement of the operation phase of the Proposed Development; and
  - All track sides would be reinstated with suitable materials to blend in with the adjoining landscape vegetation cover at the routing corridor.
- 6.7.3 It is the intention that concrete/ postcrete required for the construction of the pole foundations would be brought to the pole locations ready mixed. It is anticipated that these construction works would be visible across the majority of the alignment, given its close proximity to the A859 road corridor, however, some localised screening would be

afforded across small section of the landscape such as south of Tarbert. In any event, this process would be a temporary element and would be removed and ground cover restored to tie-in with the surrounding landcover during the reinstatement works across the Proposed Alignment site.

### Mitigation During Operation

- 6.7.4 Mitigation of the operational effects are primarily a matter of siting/ alignment and design of different aspects of the Proposed Development, and as such constitutes embedded mitigation.
- 6.7.5 This involved a staged process including Red Amber Green (RAG) Assessment to determine a suitable alignment and design that takes into account cost considerations, technical, and environmental constraints and opportunities. Details of the key design drivers and decisions made during the design of the Proposed Development are discussed in **Chapter 2: Descriptions of the Proposed Development** and **Chapter 3: Consideration of Alternatives (EIAR Volume 2)**.
- 6.7.6 Landscape and visual considerations, such as the existing landscape and visual baseline context as well as published guidance, were key to the design development. Those pertaining to the siting and design of the Proposed Development are summarised below.
- The Proposed Development is located outwith areas subject to nationally recognised landscape designations or classifications such as WLAs, and away from major settlements where possible and other concentrations of sensitive receptors;
  - Preferential use of existing tracks (where possible) throughout the OHL corridor to minimise effects associated with this aspect of the Proposed Development;
  - Where possible, poles have been located at low elevations where they would be backclothed by topography, thereby avoiding skylining the Proposed Development in key views;
  - Where possible, poles have been located to avoid interrupting views of key landscape features such as An Cliseam and various other elevated summits within the SLVIA Study Area;
  - Poles have been located away from distinctive features, scale and forms which would be compromised;
  - In larger scale upland moorland (such as the Boggy Moorland LCT), locations are more capable of accommodating transmission lines than those within small scale landscapes;
  - The Proposed Development is located within a landscape that is already undergoing change/ modification, and which contains existing or consented development (such as OHL and wind energy development) and/ or other forms of large-scale development;
  - Poles have been located to reduce the visibility and prominence of the Proposed Development from key sensitive receptor locations , including settlements (such as Ardhasaig), tourist/ scenic routes and recreational routes within the Study Area, where possible; and
  - The trident poles specified are of a size that would be suitable to the LCTs which the Proposed Development traverses, in order to ensure that the Proposed Development would have limited impacts upon the perceived size and scale of any landscape features.

## 6.8 Assessment of Residual Effects

### Residual Construction Effects

#### *Residual Effects on Landscape Fabric during Construction*

- 6.8.1 **Chapter 2: Description of Proposed Development (EIAR Volume 2)** provides a detailed assessment of the land area needed for the construction of the Proposed Development. The alignment routes across the landscape for approximately 58 km (**EIAR Volume 3a: Figures 2.1-2.3: Overhead Line Route and Access Tracks**). Within this area permanent sections of land take would be limited to the operational corridor (extending to a 60 m corridor in areas of woodland).

6.8.2 The Proposed Development would have a slight and highly localised impact on topography and has been devised to minimise effects on substrates. The key residual effect on the landscape fabric would be:

- Long-term clearance of vegetation such as the removal of coniferous forestry in and around the Aline Community Woodland and other various woodland locations, however, this removal would be restricted to the safe working corridor adjacent to the Proposed Alignment only;
- Permanent loss of existing landcover where the pole foundations are located; and
- Reinstatement of the OHL corridor and removal of the existing 132 kV OHL, comprising a combination of native, low-growing vegetation such as heather and grassland.

6.8.3 To facilitate safe construction and operational maintenance of the OHL, an additional section of coniferous woodland removal would be required, as mentioned above (Aline Community Woodland), with some minor disturbance to the existing landcover and boggy moorland and grassland, which would result in long term impacts, albeit limited to a small section of the central extent of the study area, when referring to tree removal.

6.8.4 However, it must be noted that there would not be any new and/or temporary access tracks required for installation of the Proposed Development; instead, access would be provided by utilising bog mats and low-pressure vehicles, to prevent compaction and damage outwith the operational corridor. Upon its completion the surrounding moorland and/ or grassland vegetation would be seeded/ re-planted to allow for regeneration within the corridor. These impacts, where foundations are not present, would be temporary and fully reversible upon completion of construction works.

6.8.5 Whilst construction of the OHL would entail the loss of a corridor of characteristic vegetation, the coniferous forestry removal within the Aline Community Woodland would be a comparatively modest scale in the context of the wider forestry cover within that area, assuming vegetation clearing would be limited to only that which is required for construction and safe operation of the OHL.

6.8.6 The coniferous forestry removal would be broadly consistent with similar features adjacent the Proposed Development where grid infrastructure is present and such clearances have already occurred. As such, felling operations are not uncharacteristic for landscapes containing forestry and would be accompanied by some notable diversification of forestry habitats where reinstatement is implemented. Consequently, the magnitude of impact would be Slight and the residual effect on the landscape fabric would be **Moderate** and not significant.

*Residual Effect on Seascape Landscape Character during Construction*

6.8.7 The effect of construction operations through the operational corridor would be localised to the pole and would be of relative short duration (< 30 months). Much of the disturbance associated with the construction operations would be ameliorated or removed during the subsequent reinstatement activities. It is predicted that construction works would last approximately 30 months.

6.8.8 Consequently, no significant residual effect from construction operations on the seascape and landscape character either within or in adjacent landscape character types has been identified.

*Residual Effects on Designated Landscapes During Construction*

Lewis, Harris and North Uist National Scenic Area

6.8.9 There would be direct impacts on the South Lewis, Harris and North Uist NSA as a result of the construction of the Proposed Development.

6.8.10 The southernmost extent of the Proposed Development would be wholly located within this designated landscape. Areas of moorland, grassland and a small extent of coniferous forestry would be permanently lost as a result of construction of the proposed pole foundations and the safe operation of the operational OHL corridor. Some areas would be temporary lost due to the creation of laydown areas and construction compounds.

Lews Castle and Lady Lever Park GDL, Eisgein and Harris – Uig Hills WLA

- 6.8.11 It is anticipated that visual impacts would be experienced from the Eisgein and Harris – Uig Hills WLAs, and from the Lews Castle and Lady Lever Park GDL. The construction of the Proposed Development would increase the overall activity and plant presence into the landscape for a period of approximately 30 months, however, this would be phased, with the overall project (58 km length) taking 30 months, however in areas surrounding the GDL this would be limited to < than 6 months. The Proposed Development would be built in four key stages (Phase 1 – Enabling, Phase 2 – Construction, Phase 3 – Commissioning and Phase 4 – Reinstatement/ decommissioning of existing OHL).
- 6.8.12 Temporary construction impacts would be high localised and would be for a relatively short duration. Permanent impacts would be contained within the immediate alignment corridor of the Proposed Development, while long term, any effects would be restricted to the immediate area surrounding the Proposed Development. The magnitude of impact would be **Slight**. Consequently, construction impacts arising from the Proposed Development would be locally **Moderate**, and not considered significant residual effects on the wider South Lewis, Harris and North Uist NSA or on any of the adjacent designated or classified landscapes, such as the Eisgein and Harris – Uig Hills.
- 6.8.13 **TA 6.5: Residual Effects on Landscape Designations and Classifications (EIAR Volume 4)** highlights there would be no overall significant effects on the special qualities of any of the designations or classifications within the Study Area.

*Residual Effects on Visual Amenity During Construction*

- 6.8.14 Construction operations would be confined to locations through the proposed OHL corridor, however, given its close proximity to the A859 and the lack of intervening landscape elements such as woodland and/ or topography the Proposed Development would be highly visible from the majority of external receptor locations, including settlements, transport routes and recreational routes, as defined in Section 6.6: Baseline Conditions, the exception being some more distant receptors to the southernmost extent of the Study Area, mostly isolated dwellings, screened by topography. However, these aspects of the construction operations would be relatively short term and, in most cases, fully reversible, therefore the magnitude of impact is **Slight**.
- 6.8.15 In this context, the residual construction effects on visual amenity are considered to be **Moderate** and given their temporary nature unlikely to be significant.

*Residual Cumulative Effects During Construction*

- 6.8.16 Construction of cumulative developments (identified in **Table 6.8**) may overlap or occur at the same time as the Proposed Development. The cumulative developments are concentrated to the northernmost and central easternmost extent of the Study Area. The duration of construction operations at these development sites would be relatively short and geographically confined, with each of the developments being required to implement construction mitigation to reduce any identified construction impacts.
- 6.8.17 Consequently, no significant cumulative construction effects are anticipated.

**Residual Operational Effects**

*Residual Effects on Landscape Fabric during Operation*

- 6.8.18 There would be no additional effects on the landscape fabric that would occur during the operational life of the Proposed Development. Reinstatement of the landcover/ ground within the alignment corridor, through the implementation of mitigation measure would gradually recover and mature, re-establishing the predominant landcover within the area and providing a productive land use of the alignment corridor (grazing).
- 6.8.19 Ongoing maintenance would be required to ensure clearance within the operational corridor is achieved, although given the lack of any notable woodland/ forestry vegetation this intervention would be restricted to roadside vegetation and forestry within isolated sections of the landscape, such as the Aline Community Woodland. These

ongoing maintenance activities are not considered to be of a scale to cause any notable effect on the landscape fabric within the Study Area.

*Residual Effects on Seascape and Landscape Character during Operation*

6.8.20 The location and geographical extent of the LCTs and SCTs within the Study Area are presented on **Figure 6.3a (EIAR Volume 3a)**. A detailed description of each of these LCTs and SCTs is presented within **Technical Appendix 6.1 (EIAR Volume 4)** and the detailed residual effects assessment is presented in **Technical Appendix 6.3 (EIAR Volume 4)**. A summary of its findings is presented below.

Rocky Moorland – Outer Hebrides

- 6.8.21 The Proposed Development would introduce a new large scale linear piece of infrastructure into the large scale, gently undulating peat moorlands of the LCT, however it must be noted that the existing 132 kV OHL would be removed upon the completion of the Proposed Alignment, reducing the operational concentration of transmission/ distribution infrastructure. The Proposed Alignment would be situated upon the lower slopes/ elevations of the LCT and would be associated with existing linear infrastructure such as the A859 and overhead distribution lines (11 kV and 33 kV OHLs) which pass through the LCT and are located directly adjacent.
- 6.8.22 The Proposed Development would be largely located within or along gently undulating peat moorland vegetation, traversing numerous small, rounded lochs. Moreover, the Proposed Development would be situated on the lower slopes of the moorland landscape, away from the more elevated open hill tops and slopes which are characteristic of the more elevated areas of the LCT.
- 6.8.23 The size and scale of the proposed poles would not appear out of scale within the broad character of the LCT, given the existence of existing transmission/ distribution OHLs, such as the 132 kV and other distribution lines. It is considered that the LCT would be able to accommodate development of this nature without any notable effects on its perceived size or scale. The presence of existing distribution OHLs and the A859 road corridor would also reduce the impact of the Proposed Development upon the character of the landscape, providing some context for the infrastructure associated with the Proposed Development.
- 6.8.24 The Proposed Development would represent a notable addition to the landscape in the immediate area of the development and would form a prominent but localised change within the broader, unaltered context of the LCT. Locally, the magnitude of impact would be **Medium**. However, with the removal of the existing 132 kV OHL during the later stages of the construction phase of the Proposed Development, the overall magnitude of impact would reduce to **Slight**, where the Proposed Development would due to its increased size and scale represent a minor addition to the influence of OHL infrastructure on the character of the landscape and/ or the composition of views. Importantly, once the removal of the 132 kV OHL takes place the change would be discernible, with the original baseline conditions remaining largely unaltered.
- 6.8.25 It must be noted the Rocky Moorland – Outer Hebrides LCT is an extensive character type extending across the central and northern extent of the Study Area. Any effects arising from the Proposed Development would be highly localised and would not affect the broader LCT overall. The magnitude of Impact on the Rocky Moorland – Outer Hebrides LCT overall would be **Negligible**.
- 6.8.26 The residual effect on the LCT would be locally **Moderate**, reducing upon the removal of the existing 132 kV OHL to **Moderate/ Minor**. Moreover, given the extent of the overall LCT and the localised nature of the Proposed Development, the overall residual effect on the LCT as a whole would be **Moderate/ Minor** and not significant.

Prominent Hills and Mountains

6.8.27 It is anticipated the Proposed Development would introduce a new large scale linear piece of infrastructure into the upland landscape, however it must be noted that the existing 132 kV would be removed upon the completion of the Proposed Development during the construction phase, therefore reducing the overall concentration of transmission/ distribution infrastructure within the operational phase of the development. The Proposed Development would be situated on the lower most slopes of the LCT and would be closely associated with the



existing infrastructure such as the A859 road corridor and various distribution lines which pass through the LCT and in the area of the Proposed Development.

- 6.8.28 The Proposed Development would be situated within and along the moorland/ rough grassland which occupies large swathes of the lower elevation of the LCT. The Proposed Development would be located on the lower elevations/ slopes of the undulating moorland/ grassland landscape, situated away from the upper slopes and open hill tops which are a key character of the more elevated areas throughout the LCT.
- 6.8.29 The size and scale of the proposed poles would not appear out with the broad character of this LCT, especially in the immediate area surrounding the development. It is considered that, due to its size and scale, the LCT has the ability to accommodate development of this nature without any notable effects on its perceived size and scale. Moreover, the presence of existing grazing, farm tracks and OHL distribution infrastructure would reduce the impact of the development upon the character of the landscape, providing some context for the infrastructure associated with the Proposed Development.
- 6.8.30 The Proposed Development would represent a notable new addition to the landscape, especially in the immediate area surrounding the development, and would form a prominent but localised change within a broader, unaltered context. Locally the magnitude of impact would be **Slight**. However, as part of the Proposed Development, the removal of the existing 132 kV OHL would take place after the completion of the construction phase, reducing the concentration of transmission/ distribution infrastructure within the LCT. Therefore, the magnitude of impact attributed to the Proposed Development post construction phase would reduce to **Negligible**. Therefore, it is predicted the Proposed Development would in part due to its increased size and scale represent a minor addition to the influence of OHL infrastructure on the character of the landscape and/ or the composition of views. Importantly, following the removal of the 132 kV OHL the change within the original baseline context would be discernible.
- 6.8.31 Moreover, the Prominent Hills and Mountains LCT is an extensive character type across the southern most extent of the Study Area, extending across large expanses of landscape to the north and south of Tarbert. Any effect arising from the Proposed Development would be highly localised, confined to the lower slopes/ valleys and would not affect the broader LCT overall. The magnitude of impact on the Prominent Hills and Mountain's LCT overall would be **Negligible**.
- 6.8.32 The residual effect on the LCT would be locally **Moderate**, reducing to **Moderate/ Minor** (and not significant) upon the removal of the existing 132 kV transmission OHLAs mentioned above, the Prominent Hills and Mountains LCT is an extensive character type and, given the localised nature of the Proposed Development, the overall residual effect on the overall LCT **Moderate/ Minor** and not significant.

#### Boggy Moorland – Outer Hebrides

- 6.8.33 It is anticipated that the Proposed Development would introduce a new large scale linear element into the open and expansive boggy moorland landscape, however it must be noted that the existing 132 kV OHL would be removed upon the completion of the Proposed Development, reducing the operational concentration of transmission/ distribution infrastructure within the LCT. The Proposed Development would be situated near the A859 road corridor, at a lower elevation (reducing intervisibility), and would be associated with the existing linear infrastructure such as the A859 road corridor and OHL distribution lines which travers westwards of the A859.
- 6.8.34 The Proposed Development would be largely situated within, or along the western edge of the A859 within a boggy moorland landcover which represents the predominant vegetation within the LCT as it lies within the Study Area. As previously mentioned, the Proposed Development would be situated at a slightly lower elevation, therefore partially reducing its intervisibility with the overall Boggy Moorland LCT, albeit it being limited to the lower extremities of the poles.
- 6.8.35 The dimensions of the Proposed Development would not appear out of scale with the broad character of the LCT. It is considered that the LCT given its size and scale would be able to accommodate development of this nature without any notable effects on its perceived size and scale. The presence of existing grazing, farming and

associated track networks would also reduce the impact of the Proposed Development on the character of the landscape, providing some context for the infrastructure associated with the Proposed Development.

- 6.8.36 The Proposed Development would represent a new addition to the landscape in the area of the development and would form a prominent but localised change within a broader, unaltered context. Locally, the magnitude of impact would be **Slight**. However, as part of the Proposed Development, the removal of the existing 132 kV OHL would take place upon the completion and energisation of the Proposed Development, therefore reducing the concentration of transmission/ distribution infrastructure within the LCT. It is anticipated, the magnitude of impact attributed to the Proposed Development post construction phase would reduce to **Negligible**. The Proposed Development would in part due to its increased size and scale represent a minor addition to the influence of OHL infrastructure on the character of the landscape and/ or the composition of views. Importantly, following the removal of the 132 kV OHL the change within the original baseline context would be discernible.
- 6.8.37 However, the Boggy Moorland – Outer Hebrides LCT is an extensive character type across the northern most extent Study Area, extending across large expanses of landscapes north, northwest and west of Stornoway. Any effects arising from the Proposed Development would be highly localised and would not affect the broader LCT overall. The magnitude of impact on the Craggy Upland LCT overall would be **Negligible**.
- 6.8.38 The residual effect on the Boggy Moorland – Outer Hebrides LCT would be locally **Moderate**, reducing upon the removal of the existing 132 kV OHL to **Moderate/ Minor**. Moreover, given the extent of the overall LCT and the localised nature of the Proposed Development, the overall residual effect on the LCT as a whole would be **Moderate/ Minor**.
- 6.8.39 Effects on other LCTs and SCTs within the Study Area would not exceed **Moderate to None** and would therefore not be significant, as detailed within **TA 6.3: Residual effects on Seascape and Landscape Character Types (EIAR Volume 4)**. The main character of these landscape/ seascape derived from their expansive and intimate scales, uninhabited summits, provision of panoramic views and intervisibility between summits as well as by their proximity and relationship to the sea. The Proposed Development would not impact upon these characteristics to a notable level to alter these key characteristics/ special qualities.

*Residual Effects on Landscape Designations and Classifications*

- 6.8.40 The location and extent of each landscape designation and classification with the Study Area are present on **Figure 6.4a (Volume 3a)**. A detailed description of each of these designations is presented in **Technical Appendix 6.2 (EIAR Volume 4)** and a detailed residual effects assessment is presented in **Technical Appendix 6.4 (EIAR Volume 4)**. A Wild Land Impact Assessment for the Eisgein and Harris - Uig Hills WLAs is presented in **Technical Appendix 6.6 (EIAR Volume 4)**.
- 6.8.41 A summary of findings of effects on all landscape designation and classifications is presented below.
- South Lewis, Harris and North Uist National Scenic Area

- 6.8.42 The Proposed Development would be situated low within the landscape, within an area of open moorland/ rough grassland which is currently used for grazing/ crofting practices. While the Proposed Development would alter the character of the landscape within the area immediately surrounding the Proposed Development, given the extent of backclothing, particularly along the northern most extent of the NSA, reducing the influence of the OHL on the wider NSA reducing in the south with distance. It is considered unlikely that these impacts would notably alter the special qualities for which the NSA designation exists. Moreover, it must be noted that as part of the Proposed Development, the existing 132 kv transmission line would be removed upon the completion of the construction phase of the development, reducing the concentration of OHL infrastructure within the NSA in the post construction phase.
- 6.8.43 The Proposed Development would not influence the perception of the mountainous landforms in the north of the NSA or the undulating rocky knolls within the southernmost extent of the NSA, located within and out with the

Study Area boundary respectively. The OHL would not form a prominent feature on the skyline south of Tarbert, nor would it interrupt or obscure key views or intervisibility across the landscape or out to sea.

- 6.8.44 From within the remote glen between Ardhasaig and Maraig, the Proposed Development would relate to existing land uses (transport road and existing transmission/ distribution infrastructure) and given the separation from the shoreline, and the absence of any notable vegetation such as woodland/ forestry, the Proposed Development would not impinge upon the existing scenic landscape composition. The OHL would be afforded some localised screening by the odd intervening rocky knoll/ undulating moorland, particularly to the southernmost extent of the Study Area. Where full views are present, the alignment would form a small new element within a much larger view and would not be out of character with existing transmission infrastructure, (which would be removed upon completion of the Proposed Development), or land uses within the immediate area. It would not intrude on key landscape features, such as An Cliseam which forms the key hiking summit within Lewis and Harris.
- 6.8.45 The Proposed Development would be visually associated with existing OHL distribution lines and the A859 road corridor which both pass through the NSA. It would not alter the perceived size or scale of the large mountains to the northern most point of the NSA near Ardhasaig, or impact upon the experience of these landscapes. The magnitude of impact during the construction phase of the Proposed Development would be **Slight**. However, with the removal of the 132 kV OHL upon completion of the construction phase of the Proposed Development, it is predicted the Proposed Alignment would represent a minor addition to the influence of transmission/ distribution infrastructure on the character of the landscape and/ or the composition of views. The overall change would be discernible, but the original baseline conditions would be largely unaltered. The magnitude of impact on the South Lewis, Harris and North Uist NSA would be **Negligible** during the construction phase of the development, however, with the removal of the existing 132 kV OHL, the magnitude of impact would reduce to **None**.
- 6.8.46 The residual effect during the construction phase of the Proposed Development would be **Moderate/ Minor**, reducing upon the removal of the existing 132 kv to **None** during the operational phase of the Proposed Development. Moreover, given the extent of the overall LCT and the localised nature of the Proposed Development, the overall residual effect on the LCT as a whole would be **Moderate/ Minor** and therefore not significant.

#### Wild Land Areas

- 6.8.47 An assessment (WLIA) of the two wild land areas was undertaken, and the findings are recorded in **Technical Appendix 6.6 Wild Land Impact Assessment (EIAR Volume 4)**.

#### Eisgein WLA

- 6.8.48 The Eisgein WLA is located approximately 1.4 km east of the Proposed Alignment as it routes across the western extent of Loch Seaforth, on the lower slopes of Gormul Maraig, An Cliseam and Muilach Bhiogadail. The WLA is identified for its rugged peatland and hills, cut by long and narrow fjords, and surrounded by an indented coastline, particularly to the south. The WLA is uninhabited and is mainly used for deer stalking and fish, with access often by boat. The ZTV indicated that intervisibility with the Proposed Development would be restricted to the western extent of the WLA and the western slopes of Beinn Mhor, Sidthean an Airgid and Caiteseal.
- 6.8.49 The Proposed Development is located within a part of the landscape, where existing transmission/ distribution lines and the A859 road corridor are already present, and would be adjacent to the A859. However, it must be noted that as part of the Proposed Development, the existing 132 kV OHL would be removed upon completion of the construction phase. Therefore, whilst the Proposed Development would introduce a new element into views from the western extent of the WLA, it would not be out of character within the existing views from these locations and its prominence (and consequent influence) would be lessened by the back clothing by the surrounding topography. Therefore, the magnitude of impact on the aesthetic and perceptual qualities of the WLA would be **Negligible**, resulting in a **Moderate/ Minor** (not significant) residual effect on the WLA characteristics of the Eisgein WLA.

#### Harris – Uig Hills WLA

- 6.8.50 The Harris – Uig Hills WLA is located 450 m west of the Proposed Alignment as it crosses the lower slopes of Gormul Maraig, An Cliseam and Muilach Bhiogadail. The WLA is classified for its impressive range of many different landscape elements at a variety of scales, elevation and pattern. This includes, open peatland, high rocky mountain ranges, isolated lone peaks, rocky cnochans, deeply carved fjords, open sea, island, sea cliffs, lochs and lochans and rivers. Similar to the Eisgein WLA, this WLA is mainly used for deer stalking, fishing, grazing and nature conservation and recreational purposes.
- 6.8.51 The ZTV indicated that views of the Proposed Alignment would be restricted to the eastern extent of the WLA, across the eastern slopes of Gormul Maraig, An Cliseam and Muilach Bhiogadail.
- 6.8.52 The Proposed Development would be viewed within the wider context of the A859 road corridor, scattered development and other OHL infrastructure which traverses the landscape. Moreover, as part of the Proposed Development, the existing 132 kV OHL would be removed upon completion of the construction phase of development, thereby reducing the concentration of OHL infrastructure within the landscape. Similar to those impacts on the Eisgein WLA, the Proposed Development would introduce a new linear feature into the landscape from the eastern extent of the WLA. However, it would not be out of character with the existing view from these locations, and would be fully backclothed by the surrounding landcover. Consequently, the magnitude of impact on the aesthetic and perceptual aspects of the WLA would be **Negligible**, equating to a **Moderate/ Minor** (not significant) effect on the Harris – Uig Hills WLA.

#### Gardens and Designed Landscapes

- 6.8.53 The Proposed Development would form a minor element within the landscape in views from the more elevated positions within the Lews Castle and Lady Lever Park GDL. It would be glimpsed in views from the GDL and would be viewed in the context of activity along the A859 and fully backclothed by the surrounding boggy moorland.
- 6.8.54 Views from the GDL are focused across the sea and towards Stornoway, which forms a key backdrop to views from the designated area. The Proposed Development would not interrupt or obscure, nor alter the experience or perception of these landscape features. It is anticipated that the Proposed Development would be backclothed by the undulating boggy moorland and would not form a notable or prominent element within views from the GDL. It is not anticipated the Proposed Development would exert such influence upon the qualifying features of the GDL to the extent where they would be impacted, or their enjoyment diminished.
- 6.8.55 The magnitude of impact would be **Negligible**. The Proposed Development would have a very limited impact on the baseline view and upon the special qualities of the GDL. The change is likely to be barely discernible. The residual effect would be **Moderate/ Minor** and not significant.

#### *Residual Effects on Visual Amenity*

#### Residual Effects on the Amenity of Settlements

##### Stornoway

- 6.8.56 From the main settlement of Stornoway, views of the Proposed Development would be largely screened by the dense mature vegetation which is present within Lady Lever Parkland intervening topography along the western extent of the settlement. Consequently, there would be no impacts on the amenity of this settlement, and no residual effects.

##### Tarbert

- 6.8.57 The Proposed Alignment would route through the centre of the settlement of Tarbert, traversing the lower slopes of Giolabhal before crossing the A859 road corridor. Given its elevated position partly within the central extent of the settlement, the Proposed Development is expected to be highly visible, skylined in most areas, particularly when facing west and east. It is predicted that the Proposed Development would represent a minor addition in the influence of transmission infrastructure within the settlement and/ or composition of views, however, as part of the

Proposed Development, the existing 132 kV OHL would be removed following construction of the Proposed Alignment, thereby reducing the concentration of OHL infrastructure within the settlement. The magnitude of impact experienced by receptors within the settlement of Tarbert would be **Slight**, reducing to **Negligible** upon the removal of the existing 132 kV OHL, resulting in a **Moderate** residual effect limited to the construction period of the development, reducing to **Moderate/ Minor** and not significant effect upon the removal of the 132 kV OHL.

#### Balallan

- 6.8.58 The Proposed Alignment would be situated immediately north of the settlement of Balallan, traversing the lower slopes of the adjacent hillside which form the main topographical element within views northwards. Given the undulating nature of the adjacent topography there are several sections of the OHL that would be backclothed, with other sections being skylined in views from individual properties orientated towards the north. It must be noted that there would be some localised screening afforded by small section of boundary vegetation adjacent to the main road that would screen/ filter small section of the Proposed Development from individual properties within the settlement. It is anticipated that the Proposed Development would represent a minor increase in the influence of transmission infrastructure within the settlement and/ or composition of views. However, as part of the Proposed Development, the existing 132 kV OHL would be removed upon completion of the Proposed Development, reducing the concentration of OHL infrastructure in the operational phase of the development. Moreover, the main outlook, is towards Loch Eireasort to the south from the settlement, which would be unaffected by the Proposed Development. The magnitude of impact experienced by receptors within the settlement of Balallan during the construction phase of the development, prior to the removal of the existing 132 kV would be **Slight**, reducing to **Negligible** upon the operational phase of the Proposed Development, where the Proposed Development would represent a barely discernible addition to the influence of OHL infrastructure on the character and/ or composition of views. The residual effect attributed to the Proposed Development during the construction phase and prior to the removal of the 132 kV would be **Moderate**, reducing to **Moderate/ Minor**, during the operational phase of the development, neither of which would be significant.

#### Ardhasaig

- 6.8.59 From the settlement of Ardhasaig the Proposed Alignment would be situated towards the far east of the development, situated upon the upper slopes of Gillaval. The Proposed Development would be viewed across the mountainous upper slopes to the east of the settlement, fully backclothed by the surrounding topography, reducing its prominence in view eastwards. Moreover, the majority of dwellings within the settlement are orientated westwards out towards the sea, away from the Proposed Development. Therefore, it is predicted the Proposed Development, alongside the removal of the existing 132 kV OHL would result in a discernible change to the composition of views and would be broadly consistent with the baseline view eastwards. The magnitude of impact from the settlement of Ardhasaig would be **Slight**, resulting in a **Moderate** residual effect and would not be significant.

#### Maraig

- 6.8.60 The Proposed Alignment would be theoretically visible routing across the lower slopes of Gormul Maraig to the northwest of the settlement. As the Proposed Development traverse the landscape, up to 20 trident H poles would be visible across the settlement of Maraig, however actual intervisibility with Proposed Development would be reduced due to the back clothing effect of the surrounding hill sides/ slopes that would help to reduce the prominence of the Proposed Development. Moreover, the Proposed Development would be seen within the context of the A859 road corridor and other existing wood pole OHLs. The Proposed Development, alongside the removal of the existing 132 kV OHL would represent an overall minor addition to the influence of transmission infrastructure on the composition of views from the settlement during the operational phase of the development, the change would be discernible. The magnitude of impact experience from receptors within the settlement of Maraig would be **Slight**, resulting in **Moderate** residual effect and would be not significant.

#### Diraclett

6.8.61 The Proposed Alignment would be located approximately > 1 km west of the settlement of Diraclett, traversing the elevated undulating rocky moorland landscape, with its elevated position increasing the overall influence of the Proposed Development across the settlement. The Proposed Development would, however, be partially screened/ filtered by a combination of topography and rocky knolls, albeit this screening/ filtering of views would be limited to the lower extents of the trident H poles, with several structures being skylined in views westwards. It must be noted that properties within this settlement are orientated eastwards towards the sea, these views would be unaffected by the Proposed Development. The Proposed Development, alongside the removal of the 132 kV OHL upon the completion of the construction phase, would represent a barely discernible addition to influence of Transmission infrastructure on the composition of views westwards. The magnitude of impact from the settlement of Diraclett would be **Negligible**, resulting in a **Moderate/ Minor** residual effect and would not be significant.

#### Luirbost

6.8.62 From the small settlement of Luirbost, the Proposed Alignment would be situated to the western extent, traversing the undulating open moorland landscape. Given the lack of any notable intervening landscape elements such as topography and/ or woodland or forestry vegetation, intervisibility with the Proposed Development would be extensive from the western most extent of the settlement, with around 21 – 50 trident H pole structures being visible. It is predicted that the Proposed Development would represent a minor increase in the influence of transmission infrastructure within the settlement and/ or composition of views within the western extent of the settlement, with the eastern section of the settlement being unaffected. Moreover, as part of the Proposed Development, the existing 132 kV OHL would be removed following construction of the Proposed Alignment, thereby reducing the concentration of OHL structures within views. The magnitude of impact experienced by receptors within the settlement of Luirbost would be Slight reducing with the removal of the existing 132 kV OHL to **Negligible**; this would result in a **Moderate** residual effect during the construction period prior to the removal of the 132 kV OHL, reducing to **Moderate/ Minor** during the operational phase of the development and would not be significant.

#### Laxay

6.8.63 The Proposed Alignment would be located to the north of the settlement of Laxay, traversing the more elevated undulating hillsides, given its elevated position over the settlement, the Proposed Development would be highly visible, with concentrations of between 21 – 50 trident H poles being visible at any one time. However, the majority of these poles would be partially screened/ filtered by the surrounding topography, albeit this screening/ filtering of views would be restricted to the lower part of the trident H pole's structure. It is predicted that the Proposed Development would represent a minor increase in the influence of transmission infrastructure within the settlement and/ or composition of views, reducing upon the removal of the existing 132 kV OHL. The magnitude of impact experienced by receptors within the settlement of Laxay would be **Slight** during the construction phase, reducing upon the removal of the existing 132 kV OHL to **Negligible**, resulting in a **Moderate** residual effect during the construction phase of the development, reducing to **Moderate/ Minor** upon the removal of the existing 132 kV OHL and would not be significant.

#### Scattered Settlement/Individual Properties

6.8.64 Viewed from scattered properties within the Study Area, including areas along the A859 road corridor, the Proposed Development would be seen at varying distance, within the context of an expansive, and diverse landscape. The majority of properties would be located greater than 150 m from the Proposed Development. Those properties within 150 m have been highlighted and a detailed description and detailed assessment for each of these properties is presented in **Technical Appendix 6.7 (EIAR Volume 4)**.

6.8.65 The magnitude of impact on scattered properties within the Study Area would range from None to Slight. The effect would range from **Moderate** to **None** but is considered to be **Minor** overall and therefore not significant.

### Residual Effects on the Amenity of Transport Routes

#### A859

6.8.66 Views from the A859 road corridor are diverse and pass through a range of differing landscape character types, with prominent hills to the south and the more undulating boggy moorland to the north. The Proposed Development is located in proximity to the road corridor, and in some sections crosses the A859 road, such as in Tarbert. However, the Proposed Development would be seen within the context of other existing OHL distribution structures, and afforded backclothing by the surrounding slopes and moorland landcover, reducing its prominence within views. Moreover, as part of the Proposed Development, the existing 132 kV transmission OHL would be removed following construction of the Proposed Alignment. The Proposed Development would represent a minor addition to the influence of transmission infrastructure on the composition of views from the A859, the change would be discernible. Based on the preceding analysis, the residual effect on the amenity of this route would be **Slight**, reducing to **Negligible** upon the removal of the existing 132 kV OHL, resulting in **Moderate/ Minor** residual effect during the construction phase of the development, reducing to **Minor** and would therefore not be significant.

#### B897

6.8.67 The Proposed Alignment would be located to the north of the B897 at the junction with the A859 near Mointeach Airinis and would be theoretically visible across many section of the road corridor as it traverses the landscape southwards. However, the Proposed Development would be located at a slightly lower elevation adjacent to the A859 road corridor, reducing its overall influence across the B897. Moreover, the Proposed Development would be fully backclothed from the road by the surrounding moorland landscape, only becoming more visible when approaching the A859 junction. As part of the Proposed Development, the existing 132 kV OHL would be removed upon completion of the construction phase. Thereby the Proposed Development would represent a minor addition to the influence of transmission infrastructure on the composition of views from the B897 during the operational phase of the development, the change would be discernible. Based on the preceding analysis, the residual effect on the amenity of this route would be **Slight**, reducing to **Negligible** upon the removal of the existing 132 kV OHL, resulting in **Moderate/ Minor** residual effect during the construction phase of the development, reducing to **Minor** and would therefore not be significant.

#### A858

6.8.68 Views from the A858 road are open and elevated across the landscape. The Proposed Development would be visible across the landscape to the east of the road, at a slightly lower elevation. There would be some localised screening from some short section of the road corridor in close proximity to Druim Speireag and Beinn a' Bhuna, restricting the overall intervisibility with the road corridor. Moreover, the Proposed Development would be fully backclothed by the surrounding boggy moorland landscape, reducing its presence within views eastwards. The Proposed Development would represent a barely discernible addition to influence of energy development on the composition of views. The magnitude of impact would be **Negligible**, resulting in a **Minor** residual effect and would therefore not be significant.

#### B8060

6.8.69 The Proposed Development would be visible from the B8060 to the south of Loch Eireasort, traversing the elevated hill tops to the north behind Balallan and the A859. Given the lack of any notable intervening landscape elements such as forestry or woodland, the development would be high visible, albeit it at a distance, backclothed by the surrounding landcover, reducing its prominence within the view northwards. The Proposed Development would represent a barely discernible addition to influence of energy development on the composition of views. The magnitude of impact would be **Negligible**, resulting in a **Minor** residual effect and would therefore not be significant.

#### A868

6.8.70 The Proposed Development would be located in close proximity to the A868 as it routes eastwards from Tarbert, as the route gains in elevation facing north-westwards towards Tarbert, the Proposed Development would be highly visible as it crossed the A859 road through the central extent of Tarbert. Due to the elevated position of the OHL and lack of any intervening screening, the Proposed Development would represent a minor addition to the influence of transmission infrastructure on the composition of views from the A868, the change would be discernible. Based on the preceding analysis, the residual effect on the amenity of this route would be **Slight**, resulting in **Moderate/ Minor** residual effect and would therefore not be significant.

#### B887

6.8.71 The Proposed Development would be situated to the east of the B877, along the upper slopes of Gilaval Dubh above the small settlement of Ardhasaig. Key views from the road are to the west and south out towards the sea, away from the Proposed Development. When viewing the Proposed Development from the road, the OHL would be fully backclothed in views by the surrounding topography, reducing its prominence within the landscape. Moreover, given the overall distance and recessive nature of the poles, intervisibility with the Proposed Development would be greatly reduced. The Proposed Development would represent a barely discernible addition to influence of energy development on the composition of views. The magnitude of impact would be **Negligible**, resulting in a **Minor** residual effect and would therefore not be significant.

#### Uig to Tarbert Ferry

6.8.72 As indicated by the ZTV (**Figure 6.1: Zone of Theoretical Visibility (ZTV) and Study Area**) the Proposed Development would be highly visible across the eastern extent of Tarbert, along the final approach route of the Uig to Tarbert ferry. The Proposed Development when viewed from the sea would be seen traversing the undulating rocky knolls, providing some screening/ filtering of views, albeit it being limited to those lower extremities of the Proposed Development. Moreover, given the lack of intervening elements, the more elevated section of the Proposed Development would be skylined within views, near Tarbert, before being fully screened by the lower slopes of Frith Losgaintir, towards the southernmost extent of the Study Area. The Proposed Development would represent a barely discernible addition to influence of energy development on the composition of views. The magnitude of impact would be **Negligible**, resulting in a **Minor** residual effect and would therefore not be significant.

#### Residual Effects on the Amenity of Recreational Receptors

##### Loch a' Siar and Loch an Tairbeairt

6.8.73 The Proposed Development would be highly visible from Loch a' Siar and Loch an Tairbeairt, located to the east and west of Tarbert. However, the Proposed Development would be partially backclothed by the surrounding landcover, reducing its prominence within views inland. Given the lack of any notable screening elements, there would be section of the Proposed Development that would be skylined In views, particularly near Tarbert.

6.8.74 The magnitude of impact on waterborne receptors is anticipated to be **Slight**, with the residual effect being **Moderate** and not significant. The overall change would be discernible, with the composition of the view broadly consistent with the baseline view.

##### On the Road Route not on Cycle Network Route

6.8.75 The "on the road route not on cycle network" extends across the Study Area from the southernmost point all the way north where it exits the Study Area boundary near Stornoway, the route utilises the A859 road corridor. The Proposed Development would be located adjacent the A859 road corridor, as such the Proposed Development would be highly visible from the route. However, given the back clothing effect of the surrounding topography and vegetation, section of the OHL route appears recessive within the view, reducing their prominence. Moreover, as part of the Proposed Development, the existing 132 kV would be removed upon the completion of the construction phase. The Proposed Development would be situated within a part of the landscape that already is characterised by existing distribution development, and as such the Proposed Development would be consistent within the



context of the existing baseline view. The Proposed Development would represent a minor addition to the influence of transmission infrastructure on the composition of views from the route as it traverses along the A859 road corridor, the change would be discernible. The magnitude of impact experienced by receptors would be Slight reducing with the removal of the existing 132 kV OHL to Negligible, this would result in a **Moderate** residual effect during the construction period prior to the removal of the 132 kV OHL, reducing to **Moderate/ Minor** during the operational phase of the development and would not be significant.

#### Hebridean Way

- 6.8.76 The Hebridean way is a walking route that traverses the landscape from the southernmost points within the Study Area, until it exits towards the north near Stornoway. The route utilises sections of the original decommissioned old military road and sections of the new A859 road corridor. As indicated by the ZTV there would be extensive intervisibility with the Proposed Development given its size, lack of any notable intervening landscape elements for screening and its location adjacent the A859 road, which forms a section of the Hebridean Way. However, there are sections of the route that would be fully screened from the Proposed Development such as a large section between Tarbert up until the route passes the lower slopes of Braigh an Ruiso. Moreover, where the Proposed Development is visible, it would appear recessive within the majority of views particularly along the central extent, due to the back clothing effect of the surrounding topography and landcover, reducing its influence on the route. The Proposed Development would represent a minor addition to the influence of transmission infrastructure on the composition of views from the Hebridean Way, the change would be discernible. Based on the preceding analysis, the residual effect on the amenity of this route would be **Slight**, resulting in **Moderate** residual effect and would therefore not be significant.

#### Core Paths

##### Core Path 6 – Lews Castle Grounds Path

- 6.8.77 The Proposed Development would form a minor addition to views within the more elevated areas of the core path, such as those from Cnoc na Croich, where the Proposed Development would be seen at a distance of over 1 km and fully backclothed by the surrounding landscape cover, reducing its prominence within the view. From the remainder of the core path as it lies within the GDL views would be extensively screened by the adjacent mature woodland vegetation and topography, preventing widescale intervisibility. Where there are views outwards from the GDL, these are concentrated towards Stornoway and the sea, away from the Proposed Development. The magnitude of impact would be **Negligible**. The Proposed Development would have a very limited impact on the baseline view. The change is likely to be barely discernible. The residual effect would be **Moderate/ Minor** and not significant.

##### Core Path 10 – Miabhraig – Bhiogiadail Route

- 6.8.78 The Proposed Development would be extensively visible from the eastern most extent of the core path, near the Bogha Glas car park, where the core path starts. The Proposed Development would be visible as it travels down and across the landscape, passing overhead section of the core path, before continuing across the landscape to the northeast. Given its proximity to the core path, the Proposed Development would be highly visible and would represent a new additional OHL to this part of the landscape, however, this would be limited to the construction phase of the development only, prior to the removal of the existing 132 kV OHL. Moreover, as the route progress westwards, the adjacent topography would screen any intervisibility with the Proposed Development. The Proposed Development would represent a minor addition to the influence of transmission infrastructure on the composition of views from the core path, the change would be discernible. Based on the preceding analysis, the residual effect on the amenity of this route would be **Slight**, reducing to **None** to the west, resulting in **Moderate** residual effect, that would reduce to **None** to the west and would therefore not be significant.

##### Core Path 11 – Urgha – Maraig

- 6.8.79 From the core path the Proposed Development would be highly visible towards the northern most extent of the route, as it routes downhill near Braigh an Ruiso near Loch Seafort. Given its proximity to the route within the

northern section of the route, the Proposed Development would be highly visible as it traverses the lower hill slopes to the eastern side of the A859 road, however, the Proposed Development would be fully back clothed by the adjacent landcover, reducing its prominence within the view. Along the central and southern extent of the route, the Proposed Development would be fully screened by the adjacent topography. The magnitude of impact would be **Negligible**, reducing to **None** within the central and southern extent of the route. The Proposed Development would have a very limited impact on the baseline view. The change is likely to be barely discernible. The residual effect would be **Moderate/ Minor**, reducing to **None** in the central and south of the core path and not significant.

#### Core Path 13 – Direcleit Circular Route

6.8.80 The Proposed Development would introduce an additional large scale linear piece of infrastructure to the west of the core path, however, this would be limited to the construction phase of the development, prior to the removal of the existing 132 kV. In operational views the Proposed Development would appear recessive within views to the west due to the backclothing effect of the adjacent landcover. The Proposed Development would not influence the relationship between the core path and the sea to the east which forms a key characteristic of the core path area. From locations looking westwards to the Proposed Development, would be partially backclothed by topography, partially screening the Proposed Development in many locations, with only a small handful of trident H poles being skylined such as those near Tarbert. The Proposed Development would represent a minor addition to the influence of transmission infrastructure on the composition of views from the core path, the change would be discernible. Based on the preceding analysis, the residual effect on the amenity of this route would be **Slight**, resulting in **Moderate** residual effect and would therefore not be significant.

#### Core Path 14 – Seilebost – Aird Mhighe

6.8.81 This core path is situated to the southernmost extent of the Study Area and passes in close proximity to the Proposed Development as it connects into the Harris GSP. The landscape surrounding the core path consists of undulating rocky knolls interspersed by lochs, providing intervening topography that would filter/ screen views of the Proposed Development, such as near Stoicleit an Ear and Clett a Chrunnda, preventing widespread intervisibility. Therefore, it is predicted the Proposed Development would represent a minor addition to the influence of OHL infrastructure on the composition of view from the eastern most extent of the core path. The magnitude of impact would be **Negligible**. The Proposed Development would have a very limited impact on the baseline view. The change is likely to be barely discernible. The residual effect would be **Moderate/ Minor** and not significant.

#### *Residual Effects on Viewpoints*

6.8.82 An assessment of the 17 viewpoints (VPs) was undertaken, and the findings recorded in **Technical Appendix 6.5 Viewpoint Assessment (EIAR Volume 4)**.

6.8.83 Of the 17 VPs assessed, there are none that would experience significant visual effects. As shown in **TA6.5: Viewpoint Assessment**, the range of magnitude of impact were between **Moderate/ Minor – Moderate** (not significant). In essence the Proposed Development would represent a minor addition to the influence of transmission development on the character and/ or composition of views from the representative viewpoints. The change would be discernible; however, the original character of the landscape and/ or the composition of view would be largely unaltered.

## 6.9 Cumulative Effects

6.9.1 Nearby developments, including adjacent OHLs and wind farm development at varying stages (consented, in-planning) within 10 km of the OHL development, are listed in Table 6.8 and further discussed in **Chapter 12 (EIAR Volume 2)** and displayed on **Figure 12.1: Cumulative Developments**.

6.9.2 The cumulative operational distribution infrastructure within the Study Area, are situated directly adjacent to the Proposed Development (see **Figure 12.1 Cumulative Developments**). These comprise the following:

- the existing 11 kV OHL; and
- the existing 33 kV OHL

- 6.9.3 As the routes traverse the landscape throughout the central extent of the Study Area, it would pass through a series of landscape types, with the southern and central sections providing some backclothing of these OHL poles, reducing their prominence within the landscape. Moreover, due to weathering of the poles, it has furthered allowed the developments to blend in with the adjacent landcover.
- 6.9.4 The consented wind farms schemes of Stornoway Wind Farm and Beinn Thulabaig would add to the concentration of energy infrastructure within the landscape to the north of the Study Area. However, the siting and locations of these developments would allow for some partial screening from the key neighbouring receptors by a combination of topography and vegetation, albeit this would only be effective within some the lower extremities of these developments. The consented developments would highly localised and introduce impacts on the landscape fabric in and around the wind farm sites and would likely add to the sequence of views of energy development from locations along the A859, “On the Road Route not on Cycle Network” and other local roads.
- 6.9.5 The consented Muaitheabhal and Muaitheabhal Extension are located to the eastern extent of the Study Area, situated in an isolated section of the landscape and infringes on the WLA boundary, and would comprise large scale turbines on the landscape. The developments are located in close proximity to the sea and at an elevated position, increasing their intervisibility throughout the central extent of the landscape, and would represent localised cumulative effects and would be partially mitigated by the adjacent and intervening topography.
- 6.9.6 In general, the Proposed Alignment is rarely visible in isolation, as it is located adjacent to three existing routes, two distribution OHLs (11 kV and 33 kV) and the existing 132 kV OHL, which would be removed following construction of the Proposed Alignment. The siting of the Proposed Alignment along the lower slope sides would minimise the skylining effect within the landscape. There would be temporary concentration of up to four OHL lines adjacent to the A859 road; however, with time and the completion of the Proposed Development this would reduce to the three; two which are currently present within the landscape and the newly constructed Proposed Development. The Proposed Development would represent a minor addition and would extend the influence of transmission development along the A859 road corridor.

## 6.10 Summary

- 6.10.1 The Proposed Development would introduce a new OHL alignment including trident H poles to a rural part of the landscape, characterised by rocky knolls, prominent peaks, open moorland and grassland throughout the central extent of Lewis and Harris, adjacent to the A859 road corridor. However, the overall number of OHL routes present within the landscape would reduce during the operational phase of the Proposed Development, due to the removal of the existing 132 kV OHL. This would take place over a period of 6 months from the end point of the construction and energisation phase of the Proposed Alignment, and would be temporary in nature, with removal works progressing down the full 58 km route over the course of a 6-month period.
- 6.10.2 The Proposed Development with the addition of permanent trident H poles would require the permanent removal of a small section of coniferous forestry (such as the Aline Community Woodland), boggy moorland, grassland and other vegetation, to provide a safe operation working corridor. Mitigation measures have been set out within the final design and layout of the Proposed Development to minimise the impact to the existing landscape.
- 6.10.3 There would be direct, locally significant effects on the fabric and host landscape character types within the immediate area surrounding the poles during construction and operation. The removal of vegetation cover, and modest changes to the landform (trident H pole foundations) and the direct loss of a small section of coniferous forestry to facilitate the construction and operation of the Proposed Development would alter the landscape within proximity to the Proposed Alignment and will increase the presence of transmission infrastructure within the landscape. Significant effects associated within this aspect of the Proposed Development would be high localised and would reduce substantially over a short distance from the Proposed Alignment, due to topography and other intervening elements, particularly along the central and southern extent of the Study Area. The localised removal

of vegetation cover, whilst directly impacting on the fabric of the landscape within the alignment corridor, would not detract from, or significantly alter, the distinct pattern of landscape structure that characterises the wider landscape. Operational effects would be mitigated through the implementation specified above.

- 6.10.4 The Proposed Development would not introduce a wholly new or uncharacteristic element to the existing landscape condition and would be seen within the context of other existing OHL infrastructure, including the 33 kV and 11 kV OHLs which are situated directly adjacent to the Proposed Development. Moreover, as part of the Proposed Development, the existing 132 kV OHL would be removed following construction of the Proposed Alignment, reducing the number of OHL structures within the landscape post construction to that which is broadly consistent to the current baseline.
- 6.10.5 The South Lewis, Harris and North Uist NSA would be directly affected by the Proposed Development, however, impact would be high localised, quickly reducing with distance, due to the intervening topography. Moreover, with the removal of the existing 132 kV OHL, the overall number of OHL structures either transmission or distribution would reduce post construction to that which is broadly consistent to the current baseline.
- 6.10.6 The Proposed Development would be extensively screened from the Lews Castle and Lady Lever Park GDL, with small section providing intervisibility out with. However, the Proposed Development would be fully backclothed resulting in a discernible change within the view, and it is not anticipated to exert such influence upon the qualifying features of the GDL to the extent they would be impacted, or their enjoyment diminished.
- 6.10.7 The Proposed Development would be visible from sections of the Eisgein WLA and Harris – Uig Hills WLA; however, it would not be out of character with the existing and current views from these locations. Therefore, the magnitude of impact would be **Negligible** and the result would be **Moderate/ Minor** and **not significant**.
- 6.10.8 Moreover, it must be noted there would not be any impacts on designated or classified landscape which would adversely affect their special qualities or key characteristics, or impact upon the justification for their designation.
- 6.10.9 The views towards the Proposed Development from scattered properties and settlements would be seen at varying distances, and within the context of other existing distribution OHLs and the 132 kV OHL, prior to its removal following construction of the Proposed Alignment. As the Proposed Development routes through the landscape, screening/ filtering of the Proposed Development would be afforded by a mix of topography and vegetation, particularly to the southern and central extent of the Study Area. However, those properties at a high elevation would view the Proposed Development as a new additional element within the landscape during the construction phase, with the removal of the 132 kV OHL this would reduce the concentration of OHL development within views to that which is broadly consistent to the current baseline.
- 6.10.10 The construction and operation of the existing and proposed cumulative developments would result in locally significant impacts on the character of several LCTS, the localised significant effects occurring to the northern most extent of the Study Area, in close proximity to the Stornoway Wind Farm, and would be viewed within the context of existing OHL infrastructure, and whilst it would intensify the presence of OHLs structure within the landscape, this would be restricted to the construction phase of the development, with the removal of the 132 kV post construction, the number of OHL structures would reduce, this would be highly localised.
- 6.10.11 Additionally, there would be localised significant cumulative effects arising from the sequential views of operational and consented developments, that would extend development across a wider horizontal angle of the view, and with the Proposed Development on the character of the LCTs in which the route passes through or in proximity.
- 6.10.12 Seventeen representative viewpoints were assessed as part of the SLVIA. As demonstrated within **TA6.5: Viewpoint Assessment**, there would be no significant visual effects attributed to the Proposed Development. The magnitude of impact on the representative viewpoints ranges from **Moderate/ Minor – Moderate** (not significant).
- 6.10.13 Any development of the size, scale and type proposed has the potential to cause significant landscape and visual effects. However, given as part of the Proposed Development, the existing 132 kV OHL would be removed following construction of the Proposed Alignment, thereby reducing the concentration of OHL infrastructure within the landscape, to that which is broadly consistent to the current baseline. It is apparent from the lack of any

significant effects being identified in respect of the Proposed Development, that residual operational effects have been minimised through the careful siting and design of the Proposed Development, alongside the removal of the existing 132 kV OHL, which has ultimately proven to be effective in mitigating significant effects.

**Table 6.9: Summary of Potential Significant Effects of the Proposed Development**

Likely Significant Effect	Mitigation Proposed	Means of Implementation	Outcome / Residual Effect
<b>Construction</b>			
Seascape and Landscape Character Types	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Layout and Construction methods	No significant effects
Designated Landscapes (NSA)	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Layout and Construction methods	No significant effects
Wild Land Area (WLAs)	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Layout and Construction methods	No significant effects
Gardens and Designed Landscapes (GDLs)	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Layout and Construction methods	No significant effects
Settlements	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Layout and Construction methods	No significant effects
Transportation Routes	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Layout and Construction methods	No significant effects
Recreational routes/ locations	Embedded and additional mitigation in accordance with <b>Section 6.7</b>	Layout and Construction methods	No significant effects
<b>Operation</b>			
Seascape and Landscape Character Types	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Layout	No significant effects
Designated Landscapes (NSA)	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Layout	No significant effects
Wild Land Area (WLAs)	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Layout	No significant effects
Gardens and Designed Landscapes (GDLs)	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Layout	No significant effects
Settlements	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Layout	No significant effects
Transportation Routes	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Layout	No significant effects

**Table 6.9: Summary of Potential Significant Effects of the Proposed Development**

Recreational routes/ locations	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Layout	No significant effects
<b>Cumulative Construction</b>			
Seascape and Landscape Character Types	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Alignment and Layout	No significant cumulative effects on Seascape and Landscape Character Types assessed
Designated Landscapes (NSA)	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Alignment and Layout	No significant cumulative effects on designated landscape routes assessed
Wild Land Area (WLAs)	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Alignment and Layout	No significant cumulative effects on WLAs assessed
Gardens and Designed Landscapes (GDLs)	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Alignment and Layout	No significant cumulative effects on GDLs assessed
Settlements	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Alignment and Layout	No significant cumulative effects on settlements assessed
Transportation Routes	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Alignment and Layout	No significant cumulative effects on transportation routes assessed
Recreational routes/ locations	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Alignment and Layout	No significant cumulative effects on recreational routes assessed
<b>Cumulative Operation</b>			
Seascape and Landscape Character Types	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Alignment and Layout	No significant cumulative effects on Seascape and Landscape Character Types assessed
Designated Landscapes (NSA)	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Alignment and Layout	No significant cumulative effects on designated landscape routes assessed
Wild Land Area (WLAs)	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Alignment and Layout	No significant cumulative effects on WLAs assessed
Gardens and Designed Landscapes (GDLs)	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Alignment and Layout	No significant cumulative effects on GDLs assessed
Settlements	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Alignment and Layout	No significant cumulative effects on settlements assessed
Transportation Routes	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Alignment and Layout	No significant cumulative effects on transportation routes assessed

**Table 6.9: Summary of Potential Significant Effects of the Proposed Development**

Recreational routes/ locations	Embedded and additional mitigation in accordance with <b>Section 6.7.</b>	Alignment and Layout	No significant cumulative effects on recreational routes assessed
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## 7. CULTURAL HERITAGE

### 7.1 Introduction

7.1.1 This chapter assesses the potential effects on archaeology and cultural heritage interests (hereafter referred to as 'heritage assets') associated with the construction, operation and decommissioning of the Proposed Development. This chapter (and its associated Figures and Appendices) is not intended to be read as a standalone assessment and reference should be made to the introductory chapters of this EIA Report (**Volume 2, Chapters 1-5**).

7.1.2 The assessment has been carried out by Oliver Rusk MA (Cantab) MLitt ACIFA of CFA Archaeology Ltd (CFA), a Registered Organisation (RO) of the Chartered Institute for Archaeologists (CIfA), based in Musselburgh, East Lothian. Mr Rusk is a Consultant with CFA with six years post-graduate experience as an archaeologist and is an associate of the Chartered Institute for Archaeologists (ACIFA).

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

- Volume 3a: Figures
  - Figure 7.1a-j: Cultural Heritage Assets within the Study Areas
- Volume 3b: Visual Representations
  - Figure 6.23a-d: Viewpoint 17
  - Figure 7.2: Cultural Heritage Viewpoint: Druim Dubh Stone Circle (SM 5504)
- Volume 4: Technical Appendices
  - Technical Appendix 7.1: Cultural Heritage Assets in the Inner Study Area; and
  - Technical Appendix 7.2: Cultural Heritage Assets in the Outer Study Area.

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

### 7.2 Assessment Methodology

#### Scope of Assessment

7.2.1 The chapter considers effects on:

- Scheduled Monuments (SM) and other archaeological features;
- Listed Buildings (LB) and other buildings of historic or architectural importance;
- Inventory Gardens and Designed Landscapes (GDL); and
- Conservation Areas (CA).

7.2.2 For effects scoped out see paragraphs 7.2.9-7.2.12 below.

7.2.3 The chapter assesses cumulative effects arising from the addition of the Proposed Development to other developments, which are the subject of a valid planning application, consented, or are reasonably foreseeable. Developments which are operational or under construction 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 'worst case scenario'.

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

7.2.5 The scope of the assessment has been informed by consultation responses summarised in **Table 7.1** and the following guidelines/policies:

- The Ancient Monuments and Archaeological Areas Act 1979 (as amended by the Historic Environment (Amendment) (Scotland) Act (2011)).
- Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997 (as amended by Historic Environment (Amendment) (Scotland) Act 2011).



- National Planning Framework for Scotland 3 (NPF3) 2014.
- Scottish Planning Policy (SPP) 2014 (paragraphs 135-151).
- Historic Environment Policy for Scotland (HEPS) (published 2019, finalised amended 2020).
- Planning Advice Note 2/2011: Planning and Archaeology (PAN2/2011).
- Outer Hebrides Local Development Plan (Comhairle nan Eilean Siar (CnES), 2018):
  - Policy DS1: Development Strategy
  - Policy NBH4: Built Heritage
  - Policy NBH5: Archaeology
  - Policy NBH6: Historic Areas
- Standards and guidance for Historic Environment Desk-Based Assessment (ClfA, 2014; updated 2020).
- Code of Conduct: professional ethics in archaeology (ClfA, 2014; revised 2021).
- Designation Policy and Selection Guidance (Historic Environment Scotland (HES), 2019)
- Managing Change in the Historic Environment (HES, 2016)
- Environmental Impact Assessment Handbook (Scottish Natural Heritage (SNH<sup>1</sup>) & HES, 2018)
- Principles of Cultural Heritage Assessment (IEMA, 2021).
- UK Forestry Standard: The Governments Approach to Sustainable Forestry (Forestry Commission, 2017).
- UK Forestry Standard Guidelines: Forests and Historic Environment (Forestry Commission Scotland, 2011).
- Forests and Historic Environment: Information and Advice (Forestry Commission Scotland, 2016).
- Scotland's Woodlands and the Historic Environment (Forestry Commission Scotland, 2008).

### Extent of the Study Area

7.2.6 Two study areas have been employed for the cultural heritage assessment:

- An Inner Study Area: the study area for consideration of potential direct impacts upon heritage assets, comprising a 200 m wide corridor centred on the proposed 132 kV overhead line (OHL) and a 100 m wide corridor centred on the proposed temporary access routes. A gazetteer of heritage assets within the Inner Study Area is provided as **Technical Appendix 7.1: Cultural Heritage Assets in the Inner Study Area (EIAR Volume 4)** and shown on **Figure 7.1a-j: Cultural Heritage Assets within the Study Areas (EIAR Volume 3a)**.
- An Outer Study Area, for assessment of effects on setting: a study area extending 2 km either side of the preferred alignment Limit of Deviation (LOD) corridor, employing the Proposed Development Zone of Theoretical Visibility (ZTV) model, to identify those designated heritage assets with statutory or non-statutory designations (e.g. Scheduled Monuments, Listed Buildings, Conservation Areas, Inventory Gardens and Designed Landscapes) that could have their settings adversely affected by the Proposed Development. A gazetteer of designated heritage assets within the Outer Study Area is provided as **Technical Appendix 7.2: Cultural Heritage Assets in the Outer Study Area (EIAR Volume 4)** and shown on **Figure 7.1a-j: Cultural Heritage Assets within the Study Areas (EIAR Volume 3a)**.

### Consultation Undertaken to Date

7.2.7 Consultation undertaken to date mainly pertains to the EIA Scoping Report. Scoping responses received at the time of writing that are relevant to this chapter are captured in **Table 7.1**. Further information can be found in **Appendix 1.1: Scoping Consultation Register (EIAR Volume 4)**.

7.2.8 No response was received from West of Scotland Archaeology Service (WoSAS).

<sup>1</sup> Scottish Natural Heritage (SNH) has changed its name to NatureScot as of 24th August 2020.

**Table 7.1: Scoping responses and other consultation of relevance**

Organisation	Type of Consultation	Response	How response has been considered
CnES 6 July 2022	Scoping Opinion	Advised that the Archaeology Service is content with the methodology proposed in the EIA Scoping Report.	Noted. The methodology used for the assessment is set out in Section 7.2.
		Advised consideration of the effects on Pairc Land Raiders Cairn and its landscape setting, as an asset with commemorative significance.	Noted. The setting of this monument is included in the assessment and a photomontage is provided in <b>Figure 6.23a-d (EIAR Volume 3b)</b> .
HES 24 March 2022	Alignment Consultation	Noted that HES have not identified any historic environment issues that have been overlooked during the Preferred Alignment selection process.	Noted. The preferred alignment has been taken forward for assessment in this chapter.
		Noted that consideration of potential setting impacts on a scheduled monument Druim Dubh stone circle (SM 5504) has influenced the selection of Alignment Deviation 1A. This deviation moves the Alignment to the east and further from the Druim Dubh, stone circle (SM 5504) and was introduced to offer potential improvements to the setting of this scheduled monument.	Noted. The preferred alignment has been taken forward for assessment in this chapter. A photomontage visualisation is provided for Druim Dubh, stone circle (SM 5504) in <b>Figure 7.2 (EIAR Volume 3b)</b> .
		Considered that the Preferred Alignment is appropriate for further consideration from HES's historic environment perspective.	Noted.
		Requested that a visualisation showing the proposed OHL in view from the Druim Dubh monument be provided to facilitate more detailed comments on its potential setting impacts on this stone circle.	Noted. A photomontage visualisation is provided for Druim Dubh, stone circle (SM 5504) in <b>Figure 7.2 (EIAR Volume 3b)</b> .
HES 7 June 2022	Scoping Response	Content that the scope and methodology proposed for the assessment, as set out in the Scoping Report, is appropriate and that the proposed study areas are adequate.	Noted. The methodology and study areas used for the assessment are set out in Section 7.2.6: Extent of the Study Area.
		Welcomed the inclusion of a visualisation to support the assessment of the effect on Druim Dubh, stone circle (SM 5504).	Noted A photomontage visualisation is provided for Druim Dubh, stone circle (SM 5504) in <b>Figure 7.2 (EIAR Volume 3b)</b> .

## Effects Scoped Out

- 7.2.9 Assessment of the effects of the Proposed Development on the settings of World Heritage Sites, Inventory Historic Battlefields and Marine Resources has been scoped out. There are no assets with these designations within 2 km of the Site.
- 7.2.10 Assessment of the effects of the Proposed Development on the settings of listed buildings within the Stornoway townscape has been scoped out. The settings of these buildings are characterised by their urban setting and their association with the built environment of the townscape. As such, their settings would not be adversely affected by the Proposed Development.
- 7.2.11 Assessment of the settings of designated heritage assets that fall outside of the ZTV for the Proposed Development has been scoped out. Because of the characteristics of the Proposed Development (wood pole mounted overhead line), where there is not predicted to be visibility of the Proposed Development from these assets, their settings would not be adversely affected.
- 7.2.12 Assessment of the effects of the Proposed Development on the settings of designated heritage assets more than 2 km from the Site has been scoped out. None have been identified through initial analysis as having settings sensitive to adverse effects from the Proposed Development and HES has confirmed agreement with the study area adopted.

## 7.3 Method of Baseline Data Collection

### Desk Study

- 7.3.1 A detailed desk-based assessment was conducted covering the Inner Study Area, using a range of documentary, archival, and bibliographic sources. Up-to-date information was obtained on the locations and extents of heritage assets with statutory protection and non-statutory designations within the study area. Sources consulted for the assessment include:
- CnES Historic Environment Record (HER): a digital database extract was obtained in May 2021 for all assets within 2 km of the Site;
  - The National Record of the Historic Environment (NRHE) database (Canmore) (HES, 2022a<sup>2</sup>): checked for any information additional to that contained in the HER;
  - Historic Environment Scotland Spatial Data Warehouse (HES, 2022b<sup>3</sup>): for up-to-date data on the locations and extents of Scheduled Monuments, Listed Buildings, Conservation Areas, Inventory Gardens and Designed Landscapes, and Historic Battlefields.
  - Map Library of the National Library of Scotland: for Ordnance Survey maps (principally 1st and 2nd edition) and other historic maps;
  - Aerial photography and satellite imagery (Google Earth, Bing maps, ESRI World Imagery);
  - Historic Land-Use Assessment Data for Scotland (HLAMap) (HES, 2022c<sup>4</sup>): for information on the historic land use character of the Inner Study Area; and,
  - Scottish Remote Sensing Portal (Scottish Government, 2022<sup>5</sup>): for 1 m Digital Terrain Model (DTM) Lidar data (where available) covering the Inner Study Area.
- 7.3.2 Details of the sources consulted during the desk-based assessment are provided in **Technical Appendix 7.1: Cultural Heritage Assets in the Inner Study Area (EIAR Volume 4)**.

<sup>2</sup> HES (2022a) Historic Environment Scotland's National Record of Historic Environment (NRHE) database (Canmore), available at: <http://pastmap.org.uk> (Accessed August 2022)

<sup>3</sup> HES (2022b) Historic Environment Scotland (HES) GIS downloader, available at <http://portal.historicenvironment.scot/spatialdownloads> (Accessed March 2022)

<sup>4</sup> HES (2022c) Historic Land-Use Assessment Data for Scotland (HLAMap), available at: <http://hlamap.org.uk> (Accessed August 2022).

<sup>5</sup> Scottish Government (2022) Scottish Remote Sensing Portal, available at <https://remotesensingdata.gov.scot> (Accessed August 2022).

### Field Survey

- 7.3.3 A reconnaissance walk-over field survey was carried out covering the Inner Study Area and the off-line construction access routes between 01 and 12 August 2022, with the following aims:
- to locate and record the baseline character and condition of heritage assets identified through the desk-based assessment;
  - to identify any further heritage assets not revealed through the desk-based study that could be affected by the Proposed Development;
  - to identify any areas of archaeological potential within the Inner Study Area; and
  - to assess and record the heritage value of the heritage assets identified through the desk-based assessment and field survey.
- 7.3.4 No intrusive archaeological investigations have been carried out as part of this assessment.
- 7.3.5 The field survey was undertaken by a team of two competent archaeologists who hold current ClFA membership and have sufficient experience of surveying. All data were captured electronically using a Spectra Geospatial SP20 Handheld GNSS with sub-metre accuracy. The baseline condition of identified assets was recorded on pro-forma monument recording sheets and by digital photography.

### Cultural Heritage Viewpoints

- 7.3.6 It was agreed through consultation with HES that a photomontage (**EIAR Volume 3b: Figure 7.2: Photomontage from Druim Dubh Stone Circle (SM 5504)**) be provided to show the visual impact of the Proposed Development on the setting of Druim Dubh Stone Circle (SM 5504). A viewpoint visualisation (**EIAR Volume 3b: Figure 6.23a-d: Viewpoint 17**) from the Pairc Land Raiders Cairn (MWE 118897) was also requested on consultation with CnES, with regard to the visual impact on the commemorative monument's setting. No visualisations from other heritage assets were requested.

### Limitations and Assumptions

- 7.3.7 The desk-based assessment draws on the records in the CnES HER, provided in a digital Geographic Information System (GIS) dataset in May 2021 ahead of the route alignment stage and design of the Proposed Development alignment. It is assumed that the data provided was accurate and up to date at the time it was acquired. It is unlikely that there have been significant changes to the dataset since it was acquired, and it is assumed to be a reliable and accurate reflection of the recorded cultural heritage baseline for the purpose of this assessment.
- 7.3.8 Designated heritage assets within the Outer Study Area (**EIAR Volume 3a: Figure 7.1a-j: Cultural Heritage Assets within the Study Areas**) have been identified from the HES database and were downloaded from the HES website<sup>6</sup> in March 2022. This data is assumed to have been accurate and up to date at the time of its acquisition.

## 7.4 Method of Assessment

- 7.4.1 The effects of the Proposed Development on heritage assets have been assessed on the basis of their type (direct effects, effects on setting, and cumulative effects) and nature (adverse or beneficial):
- Adverse effects are those that detract from or reduce cultural significance or special interest of heritage assets; and
  - Beneficial effects are those that preserve, enhance, or better reveal the cultural significance or special interest of heritage assets.

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<sup>6</sup> HES (2022b) Historic Environment Scotland (HES) GIS downloader, available at <http://portal.historicenvironment.scot/spatialdownloads> (Accessed March 2022)

7.4.2 The assessment of significance of effects has been undertaken using two key criteria: the value/sensitivity of the cultural heritage asset and the magnitude of the predicted impact, which measures the degree of change to the baseline condition of an asset resulting from the Proposed Development.

### Sensitivity of Receptor

7.4.3 Cultural heritage assets are attributed importance through the designation process. Designation ensures that sites and places are recognised and protected by law through the planning system and other regulatory processes. The level of protection and how a site or place is managed varies depending on the type of designation and the laws and policies applicable to it (HES, 2019<sup>7</sup>).

7.4.4 **Table 7.2** summarises the relative sensitivity of those heritage assets (and their settings) relevant to the Proposed Development, excluding in this instance World Heritage Sites, Inventory Historic Battlefields and Marine Resources.

<b>Sensitivity of Asset</b>	<b>Definition/Criteria</b>
High	Assets valued at an international or national level, including: Scheduled Monuments; Category A Listed Buildings; Inventory Garden and Designed Landscapes; and Non-designated assets that meet the relevant criteria for designations.
Medium	Assets valued at a regional level, including: Archaeological sites and areas that have regional value (contributing to the aims of regional research frameworks); Category B Listed Buildings; and Conservation Areas.
Low	Assets valued at a local level, including: Archaeological sites that have local heritage value; Category C Listed Buildings; and Unlisted historic buildings and townscapes with local (vernacular) characteristics.
Negligible	Assets of little or no intrinsic heritage value, including: Artefact find-spots (where the artefacts are no longer in situ and where their provenance is uncertain); and Poorly preserved examples of particular types of features (e.g. quarried and gravel pits, dilapidated sheepfolds, etc.).

### Magnitude of Impact

7.4.5 Criteria for assessing the magnitude of impact (adverse or beneficial) are presented in **Table 7.3**.

<b>Magnitude of Impact</b>	<b>Criteria</b>	
	<b>Adverse</b>	<b>Beneficial</b>
High	Changes to the fabric or setting of a heritage asset resulting in the complete or near complete loss of the asset's cultural significance.	Preservation of a heritage asset in situ where it would otherwise be completely or almost completely lost.

<sup>7</sup> HES (2019) 'Designation Policy and Selection Guidance', Edinburgh.

	Changes that substantially detract from how a heritage asset is understood, appreciated, and experienced.	Changes that appreciably enhance the cultural significance of a heritage asset and how it is understood, appreciated, and experienced.
Medium	<p>Changes to those elements of the fabric or setting of a heritage asset that contribute to its cultural significance such that this quality is appreciably altered.</p> <p>Changes that appreciably detract from how a heritage asset is understood, appreciated, and experienced.</p>	<p>Changes to important elements of a heritage asset's fabric or setting, resulting in its cultural significance being preserved (where this would otherwise be lost) or restored.</p> <p>Changes that improve the way in which the heritage asset is understood, appreciated, and experienced.</p>
Low	<p>Changes to those elements of the fabric or setting of a heritage asset that contribute to its cultural significance such that this quality is slightly altered.</p> <p>Changes that slightly detract from how a heritage asset is understood, appreciated, and experienced.</p>	<p>Changes that result in elements of a heritage asset's fabric or setting detracting from its cultural significance being removed.</p> <p>Changes that result in a slight improvement in the way a heritage asset is understood, appreciated, and experienced.</p>
Negligible	Changes to fabric or setting of a heritage asset that leave its cultural significance unchanged and do not affect how it is understood, appreciated, and experienced.	

### Assessing Effects on Setting

7.4.6 The SNH/HES EIA Handbook (2018) Appendix 1, paragraph 42 advises that:

*"In the context of cultural heritage impact assessment, the receptors are the heritage assets and impacts will be considered in terms of the change in their cultural significance".*

7.4.7 Historic Environment Scotland's guidance document, 'Managing Change in the Historic Environment: Setting' (HES, 2016), notes that:

*"Setting can be important to the way in which historic structures or places are understood, appreciated and experienced. It can often be integral to a historic asset's cultural significance."*

*"Setting often extends beyond the property boundary or 'curtilage' of an individual historic asset into a broader landscape context".*

7.4.8 The guidance also advises that:

*"If proposed development is likely to affect the setting of a key historic asset, an objective written assessment should be prepared by the applicant to inform the decision-making process. The conclusions should take into account the significance of the asset and its setting and attempt to quantify the extent of any impact. The methodology and level of information should be tailored to the circumstances of each case".*

7.4.9 The guidance recommends that there are three stages in assessing the impact of a development on the setting of a historic asset or place:

- Stage 1: identify the historic assets that might be affected by the Proposed Development;
- Stage 2: define and analyse the setting by establishing how the surroundings contribute to the ways in which the historic asset or place is understood, appreciated, and experienced; and
- Stage 3: evaluate the potential impact of the proposed changes on the setting, and the extent to which any adverse impacts can be mitigated.

7.4.10 The SNH/HES EIA Handbook (2018) Appendix 1, paragraph 43 advises that:

*“When considering setting impacts, visual change should not be equated directly with adverse impact. Rather the impact should be assessed with reference to the degree that the proposal affects those aspects of setting that contribute to the asset’s cultural significance”.*

7.4.11 Following these recommendations, the ZTV has been used to identify those heritage assets from which there would be theoretical visibility of the Proposed Development and to assess the degree of potential visibility. Consideration has also been given to designated heritage assets where there is no predicted visibility of the Proposed Development from the asset but where views of or across the asset are important factors contributing to its cultural significance. In such cases, consideration was given to whether the Proposed Development could appear in the background of those views.

7.4.12 Scheduled Monuments, Listed Buildings, Conservation Areas, and Inventory Gardens and Designed Landscapes, where present within the ZTV, are included in the assessment. These assets are included in the tabulated assessments in **Technical Appendix 7.2: Cultural Heritage Assets in the Outer Study Area (EIAR Volume 4)**, using the parameters set out in **Table 7.2**, and they are shown on **Figure 7.1a-j: Cultural Heritage Assets within the Study Areas (EIAR Volume 3a)**.

### Cumulative Effects

7.4.13 The assessment of cumulative effects on heritage assets is based upon consideration of the effects of the Proposed Development on the settings of assets with statutory and non-statutory designations within the Outer Study Area (which includes the Inner Study Area), in addition to the likely effects of cumulative developments. **Figure 12.1: Cumulative Developments (EIAR Volume 3a)** shows the Proposed Development along with other cumulative developments addressed in **Chapter 12: Cumulative Assessment (EIAR Volume 2)**. For assessment of the potential cumulative effects on heritage assets, cumulative developments with footprints situated within the 2 km Outer Study Area of the Proposed Development are considered. No designated heritage assets within the Outer Study Area have been identified as having settings sensitive to adverse effects from the Proposed Development, in combination with any cumulative developments more than 2 km from the Site.

7.4.14 Operational, under construction developments and existing grid infrastructure elements, are considered as part of the baseline and taken to be such for the assessment of effects on the settings of heritage assets.

7.4.15 Other cumulative developments which are consented, at the application stage or are reasonably foreseeable (including Aignish Community Wind Farm and Stornoway Wind Farm) are considered as being potential additions to the baseline and considered in the cumulative impact assessment (for details on Cumulative Developments considered in this assessment see **Chapter 12: Cumulative Assessment (EIAR Volume 2)**).

7.4.16 The assessment takes into account the nature and relative scales of the various developments, their distance from the affected assets, and the potential degree of visibility from the assets of the various developments.

### Significance Criteria

7.4.17 The sensitivity of the asset (**Table 7.2**) and the magnitude of the predicted impact (**Table 7.3**) are used to inform an assessment of the significance of the effect (direct effect or effect on setting), summarised using the approach set out in the matrix in **Table 7.4**. The matrix employs a graduated scale of significance (from negligible to major effects) and where two outcomes are possible through application of the matrix, professional judgement, supported by reasoned justification, has been used to determine the assessed level of significance.

<b>Table 7.4: Significance Criteria</b>				
<b>Magnitude of Impact</b>	<b>Sensitivity of Asset</b>			
	<b>High</b>	<b>Medium</b>	<b>Low</b>	<b>Negligible</b>
High	Major	Major / Moderate	Moderate / Minor	Minor / Negligible
Medium	Major / Moderate	Moderate	Moderate / Minor	Minor / Negligible
Low	Moderate / Minor	Moderate / Minor	Minor	Negligible
Negligible	Minor / Negligible	Minor / Negligible	Negligible	Negligible

7.4.18 Major and moderate effects are considered to be significant for the purposes of the EIA Regulations. Minor and negligible effects are not considered to be significant.

## 7.5 Baseline Conditions

### Current Baseline

#### *Inner Study Area*

- 7.5.1 No designated heritage assets have been identified within the Inner Study Area. Eighty-eight non-designated heritage assets have been identified within the Inner Study Area.
- 7.5.2 Numbers in brackets in the following text, refer to asset numbers shown on **Figure 7.1a-j: Cultural Heritage Assets within the Study Areas (EIAR Volume 3a)**.
- 7.5.3 Full descriptions, and an assessment of their value/sensitivity, are provided in **Technical Appendix 7.1: Cultural Heritage Assets in the Inner Study Area (EIAR Volume 4)**.

#### Designated Heritage Assets

- 7.5.4 There are no Listed Buildings (LB) or Scheduled Monuments (SM) within the Inner Study Area and the Inner Study Area does not cross any Conservation Areas (CA), or Inventory Garden and Designed Landscapes (GDL).

#### Non-Designated Heritage Assets

##### Prehistoric

- 7.5.5 An area of prehistoric pine and birch woodland (58) is recorded to the west of the settlement of Vigadale, moderately well-preserved in peat. Disturbance from peat extraction has revealed tree stumps with evidence of stone tool marks. Given the potential for preservation of material that elucidates early prehistoric resource management, the area is assessed to have heritage value at the regional level and to be of medium sensitivity.
- 7.5.6 The HER records a possible standing stone (40) near the summit of Druim an Eich Dhuibh. The remains comprise a single broken stone, over 1 m in length, surrounded by several smaller stones (Curtis and Curtis, 1992<sup>8</sup>). Another stone setting (67), formed of irregularly shaped stones, is recorded overlooking the pass at Bac a' Ghail. These structures have not been dated and their origin is uncertain. Neither could be located during field survey. While they are possibly prehistoric in origin, as minor features in the landscape that can no longer be located, they are considered to have little heritage value and to be of negligible sensitivity.
- 7.5.7 An unprovenanced findspot of a roughly shaped quernstone (82), is recorded in the area to the south-west of Tarbert. The quernstone is recorded as having been discovered in 1888 but no details of the circumstances or exact location of the find are recorded. The artefact was moved to a museum in Greenock and, as such, the location retains little heritage value and is of negligible sensitivity.

<sup>8</sup> Curtis, M. R. and Curtis, G. R. (1992) 'Druim an Eich Dhuibh, Balallan (Lochs parish): stone structure', *Discovery Excav Scot*, 1992. Page(s): 87



#### Medieval/Post-medieval: Settlements

- 7.5.8 The remains of several crofting townships (22, 26, 32, 44, 45, 55, 56, 72-76, 81, 83 and 85) survive in improved pasture ground amongst modern settlement either side of the modern A859 road. These are depicted on the 1st and 2nd Edition Ordnance Survey maps and comprise numerous rectangular buildings close to the road, with enclosures and smaller structures scattered throughout a wider area, all enclosed within a head dyke. Areas of cultivation are occasionally visible on lidar imagery close to the farmhouses.
- 7.5.9 Field survey identified turf and stone footings for extensive head dykes, farmhouses, shielings, clearance cairns and enclosures within two of the former crofting townships, at Ardhasaig (72) and West Tarbert (75). As denser areas of features, presenting a variety of structural remains, these sites are likely to retain a range of evidence related to the life and development of crofting communities in the 18th and 19th centuries. They are considered to have heritage value at a regional level and to be of medium sensitivity.
- 7.5.10 Four settlements (22, 26, 32 and 73) principally feature only head dykes or field banks within the Inner Study Area, with occasional structural remains and areas of cultivation furrows. The remains of drystone structures, field banks and enclosures were observed, in poor to moderate condition, throughout the remaining townships (44, 45, 55, 56, 74, 76 and 85). The surviving turf-covered remains and field systems represent lasting elements of the relict crofting landscape, and they are likely to retain archaeological evidence of domestic life and farming practices in the 18th and 19th centuries. They are assessed as having heritage value at a regional level and to be of medium sensitivity.
- 7.5.11 No structural remains were identified associated with earlier phases of settlement at Tarbert (81 and 83). Earlier buildings depicted on the 1st and 2nd Edition Ordnance Survey maps have been built over by the modern town. As such, these farmsteads retain little heritage value and are of negligible sensitivity.

#### Medieval/Post-medieval: Buildings

- 7.5.12 The footings of two farmhouses (38 and 45a) were identified in moderate condition during field survey, associated with settlements at Balallan and Arivruaich. They are shown on 1st and 2nd Edition Ordnance Survey maps and are surrounded by rig and furrow cultivation visible on aerial and lidar imagery. A third structure (61) at Vigadale, previously recorded as poorly preserved wall footings, proved not to be archaeological during field survey. A drystone sheepfold (64) was recorded lying within fields of rig and furrow cultivation to the south at Scaladale. A series of blackhouses (80) is given a generalised location near Tarbert in the HER but they are not visible on historic maps or aerial photography of the area. It is likely that they relate to an earlier phase of buildings within the footprint of the modern village, that no longer survive. Field survey confirmed that no remains are present at the recorded location.
- 7.5.13 The moderately well-preserved farmhouse remains and sheepfold (38, 45a and 64) have the potential to hold evidence relating to domestic life and farming practices in the associated former crofting settlements. They are also relicts of the past farming landscape and contribute to the historic landscape character. They are assessed as having heritage value at a local level and to be of low sensitivity. The mis-identified remains at Vigadale (61) and the given location for the blackhouses (80) at Tarbert are assessed as having little to no heritage value and to be of negligible sensitivity.
- 7.5.14 Two 19th-century buildings are visible on historic maps and remain in modern use at Soval Lodge (19 and 20). The 19th-century Harris Tweed factory (78) is shown on the 2nd Edition Ordnance Survey map but was demolished in the 20th century, with the site forming the car park of a modern school. These recent and existing structures are considered to have heritage value at a local level and to be of low sensitivity.

#### Medieval/Post-medieval: Shielings

- 7.5.15 Ten shieling sites (4, 9, 11-14, 39, 52, 68 and 69) are identified in HER entries across upland heather moor and close to crofting settlements. They are frequently visible on 1st and 2nd Edition Ordnance Survey maps and survive as grouped or isolated turf-covered footings. Field survey identified a further eleven shieling sites (6, 10, 25, 33-35, 37, 47, 49, 50 and 56a) comprising singular remains or groupings of turf and stone footings. Shieling

huts are usually associated with medieval or post-medieval summer grazing activity and are components of the local historical landscape, common throughout Scotland and on the islands.

- 7.5.16 Two groups of shielings (11 and 69) consist of clustered structures of varied dimensions, indicative of phased or sustained use. They are likely to retain archaeological evidence for the development of more complex pastoral sites and are assessed as having heritage value at a regional level and to be of medium sensitivity. The remaining shieling sites, where structural remains are in poor to moderate condition, retain some archaeological potential and are assessed as having heritage value at a local level and to be of low sensitivity. Two of the sites (10 and 52) are very poorly preserved and are considered to have little heritage value and to be of negligible sensitivity.

Medieval/Post-medieval: Enclosures and field banks

- 7.5.17 Five enclosures (2, 17, 43, 62 and 86) were identified from HER entries, historic maps, and/or aerial photography within areas of moorland. They comprise turf-covered earth and stone banks that are indicative of historic land management in the former pastoral landscape, principally for the care of livestock or enclosing dangerous ground (43). Field survey identified an additional enclosure (28) at Valtos. However, no features were observed within the Inner Study Area at Oidraival (17) during field survey and the enclosure at Vigadale (62) proved not to be archaeological. As such, these two sites are considered to have no heritage value and to be of negligible sensitivity.
- 7.5.18 Several linear field banks and head-dykes were also identified, associated with former settlements or boundaries at Loch Caol (53), Vigadale (63), Tarbert (79 and 87), and Horsacleit (88). Two further field banks (3 and 84) were recorded during field survey, potentially related to drainage and nearby peat cutting. A turf and stone dyke (46) and field boundary (64b) were observed bordering areas of rig and furrow cultivation at Arivruaich and Scaladale. These relict features provide evidence of the extents and division and sub-division of the former settlements and their surroundings. The land boundary at Loch Caol (53) is poorly preserved in boggy ground and truncated by forestry planting, while a previously recorded bank (60) at Vigadale was shown not to survive during field survey. As such, they retain little heritage value and are assessed to be of negligible sensitivity.

- 7.5.19 The surviving enclosures, field banks and boundaries are relict elements of the historic farming landscape and contribute to the local historic landscape character. They are assessed as having heritage value at a local level and to be of low sensitivity.

Medieval/Post-medieval: Peat cuttings

- 7.5.20 The practice of traditional peat cutting, both by hand and modern mechanised extraction, is visible in extensive areas adjacent to the modern A859 and around historic and modern-day settlements. Seven principal areas of rectilinear cuttings have been identified (1, 7, 15, 16, 18, 21 and 29). As minor features of the historic landscape, but often persisting in modern land-use, the peat cuttings themselves are assessed as retaining little intrinsic heritage value and are assessed as being of negligible sensitivity.

Medieval/Post-medieval: Miscellaneous

- 7.5.21 Field survey recorded an oval pile of stones (5) with a cleared area to the northeast side, possibly indicative of a boat noost on the eastern shore of Loch Beag Cnoc a' Choilich. A small stone platform (23) with two possible causeways was also identified, close to the eastern shore of Loch Ulapuill. The date and function of these structures is uncertain and as minor features at the water's edge, they are assessed as having heritage value at a local level and to be of low sensitivity.
- 7.5.22 A shieling site, surviving as a grassy mound, was previously recorded to the west of Balallan but no structural remains were observed at the location during field survey. In the vicinity was a mound of grass-covered stones (36), which is instead interpreted as a disturbed clearance cairn. Another clearance cairn (24) was identified to the south of Loch Ulapuill, close to an isolated shieling (25). While likely relating to field clearance, these isolated features may hold some archaeological potential and are assessed as having heritage value at a local level and to be of low sensitivity.

- 7.5.23 The Pairc Deer Raid Monument (42) commemorates a significant event in the history of the 19th-century crofting way of life on Lewis. As a prominent memorial integral to local history, it is assessed as having heritage value at a local level and to be of low sensitivity.
- 7.5.24 Several former bridges with modern replacements are recorded in HER entries: at Laxay (30 and 31), Balallan (41), Allt nan Each (48), Vigadale (57 and 59), Clett Ard (66) and Ceann an Ora (71). Five of the earlier stone bridges (30, 41, 48, 66 and 71) are retained alongside the modern concrete crossings, such as at Laxay (31), and are considered to have heritage value at a local level and to be of low sensitivity. The remainder are minor historic features that no longer survive along the upgraded road, having little intrinsic heritage value and of negligible sensitivity.
- 7.5.25 A pair of square, stone gate posts (8) with ornamental cast-iron finials were observed adjacent to a modern access track at Leidhniscall and do not appear on historic maps. As a minor feature of probable 20th-century date, the posts have little heritage value and are assessed to be of negligible sensitivity.
- 7.5.26 Three dams (27, 54 and 77) were recorded during field survey at the mouths of lochs and reservoirs, constructed of stone and concrete. Two (27 and 77) are shown on the 2nd Edition Ordnance Survey map and all three probably date from the late 19th to early 20th century. As surviving minor features of later water management they have little heritage value and are of negligible sensitivity.
- 7.5.27 A former track (65), visible on the 1st and 2nd Edition Ordnance Survey maps, follows the line of the existing OHL south of Scaladale. Field survey found the track to be retained in poor condition for much of its course. It is assessed as having little heritage value and to be of negligible sensitivity.
- 7.5.28 A group of gravel pits (51) lies within the Inner Study Area along the line of the old road adjacent to the modern A859. They are visible on the 1st and 2nd Edition Ordnance Survey maps and are common throughout the immediate area, most likely used in construction and maintenance of the road in historic times. A small drystone building (51b) was recorded within the pits during field survey, likely related to later storage. As minor features of the historic landscape they are assessed as having little heritage value and to be of negligible sensitivity.
- 7.5.29 A modern quarry at Ceann an Ora (70) is also recorded in the HER and is assessed as having no heritage value and to be of negligible sensitivity.

### Archaeological Potential

- 7.5.30 The Inner Study Area runs from the Harris grid supply point (GSP) 6 km south of Tarbert, traversing the lower slopes of Uabhall Beag and cutting across rocky open ground to the west of the A859. Upon passing through Tarbert, it largely follows the route of the modern A859 road and the alignment of the existing OHL to Stornoway Substation. To the northeast, it passes to the north of several townships at Aline, Arivruaich, Balallan and Laxay. The HLA Map<sup>9</sup> records that much of the Inner Study Area comprises rough pasture with no evidence for recent agricultural improvement, along with an area of 20th century commercial forestry plantation, to the north of Aline. The crofting townships and associated smallholdings about the road, with extensive areas of traditional peat cutting throughout the surrounding areas, amidst numerous lochs and lochans (**EIAR Volume 3a: Figure 7.1a-j: Cultural Heritage Assets within the Study Areas**).
- 7.5.31 No prehistoric settlement remains have been identified within the Inner Study Area. However, stone tool marks have been recorded on preserved wood (58) near Vigadale and a quernstone (82) was recovered to the southwest of Tarbert in the 19th century. A possible standing stone (40) was previously recorded near the summit of Druim an Eich Dhiubh. Additional prehistoric remains have been recorded within the immediate area, including Druim Dubh stone circle (SM 5504), a Neolithic chambered cairn (SM 6550) at Cnoc na Croich and a polished stone axehead (MWE4063) found at Maarvig. These remains indicate that there has been some prehistoric (Neolithic to Bronze Age) activity surrounding the loch shores throughout the area.

<sup>9</sup> HES (2022c) Historic Land-Use Assessment Data for Scotland (HLAmap), available at: <http://hلامap.org.uk> (Accessed August 2022).

- 7.5.32 The remains of several pre-clearance townships and 18th/19th century blackhouse-type buildings along with the remains of their associated field systems (field banks, enclosures, lazy bed cultivation remains) survive in rough pasture areas abutting the modern A859 road. These settlements continue to be occupied, with many of the earlier buildings destroyed by modern dwellings close to the road, at Laxay, Balallan, Arivruaich, Aline and between Ardhasaig and Diraclett. The crofting settlement of Tarbert has seen substantial development as an urban area since the 19th century. Traditional peat cutting frequently surrounds lochans close to the townships and extends throughout moorland adjacent to the road in the northeast of the Inner Study Area. Shieling huts are also scattered throughout rough pasture on the periphery of the settlements. All of these remains indicate there has been activity and settlement within the local area from the medieval period onwards.
- 7.5.33 In areas where the Site crosses modern commercial forestry plantation the survival of both the historic character of the landscape and any hitherto unknown features in these areas would have been appreciably compromised. The potential for hitherto undiscovered archaeological remains to survive in these areas is considered to be negligible. Forestry ploughing and drainage works, as well as subsequent tree root growth, and the effects of wind-throw and forestry harvesting, are likely to have disturbed or destroyed the integrity of any surviving buried archaeological deposits that may have survived in these areas.
- 7.5.34 There is a moderate potential for buried archaeological remains to survive within peat in the area of preserved prehistoric woodland (58) at Vigadale. Traditional peat extraction and modern disturbance or drainage are likely to have impacted the preservation of artefacts or deposits in the area to some extent. However, it remains likely that indicators of prehistoric resource extraction may survive.
- 7.5.35 In those areas where relict features of the former crofting townships survive, it is considered that there is a low to moderate potential for further buried archaeology to be present, with an increased potential for buried remains to survive particularly where the Site passes Balallan (32), Arivruaich (45), Ardhasaig (72) and Tota Glas (76). Concentrated groupings of shieling huts are also considered to have an increased potential for buried remains due to the prolonged use and intensity of activity indicated at such sites, including Airigh A' Bhaile Ghlais (11) and Loch A' Mhorghain (69).

### Outer Study Area

- 7.5.36 Within the Outer Study Area there are 24 designated heritage assets, as shown on **Figure 7.1a-j: Cultural Heritage Assets within the Study Areas (EIAR Volume 3a)**. They are detailed in the tabulated assessment in **Technical Appendix 7.2: Cultural Heritage Assets in the Outer Study Area (EIAR Volume 4)** along with one non-designated asset, the Pairc Land Raiders Cairn (MWE 118897) commemorative monument. The designated assets comprise:

- Three Scheduled Monuments (all with predicted theoretical visibility of the Proposed Development)
- Three Category A Listed Buildings (none with predicted theoretical visibility of the Proposed Development)
- Six Category B Listed Buildings (four with predicted theoretical visibility of the Proposed Development)
- Ten Category C Listed Buildings (nine with predicted theoretical visibility of the Proposed Development)
- One Conservation Area (with no predicted theoretical visibility); and
- One Inventory Garden and Designed Landscape (with some degree of predicted theoretical visibility of the Proposed Development).

### Future Baseline

- 7.5.37 If the Proposed Development were not to proceed, there would likely be no change to the baseline condition of the various heritage assets that presently exist within the Inner Study Area. Current agricultural land-use would most likely continue and there would be no change to the character of the heritage assets, other than the erosion of features through natural processes and agricultural activities. The current rough pasture and moorland land-use (on higher ground) would also likely continue, limiting the potential for disturbance to heritage assets, and only natural decay (weathering and erosion) would affect the surviving upstanding remains.

- 7.5.38 Commercial forestry land-use would also likely continue, on a cyclical felling and replanting basis, with some potential for the extension of areas covered by forestry and for new areas of woodland planting to be identified. The forestry land-use regime would be subject to the normal requirements of UK Forestry Standards, would result in limited potential for disturbance to identified historic assets and could result in new heritage assets being brought to light and added to the archaeological record. It is probable that only natural decay through erosion or arising from tree planting would occur to surviving remains within forested areas.
- 7.5.39 Peat-cutting activity, in areas of traditional peat extraction and surrounding recent crofting settlements, would also likely continue, on a small scale. This would largely consist of manual extraction, with limited potential for mechanical extraction on a smaller scale in proximity to existing settlements. It is unlikely that the areas for peat extraction would be significantly expanded beyond existing coverage, limiting potential for further disturbance to identified historic assets or revealing and damaging buried archaeological remains. It is probable that only natural decay, through erosion or arising from peat cutting and drainage, would occur to surviving remains within peat extraction areas.
- 7.5.40 Designated heritage assets in the Outer Study would be subject to normal statutory requirements and planning constraints.

### Sensitive Receptors

- 7.5.41 A summary of the receptors identified as being sensitive to the Proposed Development and which have been 'scoped in' to the assessment are given in **Table 7.5**, together with the justification for inclusion.

<b>Table 7.5: Summary of Sensitive Receptors Scoped-In</b>		
<b>Receptor</b>	<b>Sensitivity</b>	<b>Justification</b>
Scheduled Monuments up to 2 km from the Site.  A list of these is provided in <b>Technical Appendix 7.2: Cultural Heritage Assets in the Outer Study Area (EIAR Volume 4)</b> along with their relative sensitivities.	High	These are monuments protected by statute.  The consent of Scottish Ministers is required before any works are carried out which would have the effect of demolishing, destroying, damaging, removing, repairing, altering, adding to, flooding or covering up a Scheduled Monument. In addition, effects of the Proposed Development works upon the setting of a Scheduled Monument form an important consideration in the granting or refusal of planning consent to conduct development works.
Listed Buildings up to 2 km from the Site.  A list of these is provided in <b>Technical Appendix 7.2: Cultural Heritage Assets in the Outer Study Area (EIAR Volume 4)</b> along with their relative sensitivities.	Low to High	Buildings which are statutorily protected as buildings of special architectural or historic interest. They are protected under the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997 (1997 Act). Planning authorities and Scottish Ministers are required to have special regard for the desirability of preserving Listed Buildings and their settings and any features of special architectural or historic importance they possess.
Inventory Gardens and Designed Landscapes up to 2 km from the Site.  A list of these is provided in <b>Technical Appendix 7.2: Cultural Heritage Assets in the Outer Study Area (EIAR Volume 4)</b> along with their relative sensitivities.	High	The impact of a development on a Garden or Designed Landscape listed in 'An Inventory of Gardens and Designed Landscapes in Scotland or its Supplements' (Inventory; published by HES) is a material consideration in the determination of a planning application, although the designation is non-statutory in effect. Under the provisions of the Town and Country Planning (General Development Procedure) (Scotland) Order 1992 (1992 Order), planning authorities must consult HES on any development that may affect a site contained in the Inventory.
Conservation Areas up to 2 km from the Site.	Medium	Areas proposed by Local Development Plans as areas of special architectural or historic interest and contain key features which it is desirable to conserve, sustain and enhance. Planning authorities

**Table 7.5: Summary of Sensitive Receptors Scoped-In**

<p>A list of these is provided in <b>Technical Appendix 7.2: Cultural Heritage Assets in the Outer Study Area (EIAR Volume 4)</b> along with their relative sensitivities.</p>		<p>are required to consider planning applications affecting the appearance, character or setting of Conservation Areas.</p>
<p>Other non-designated historic environment assets within the Site.  A list of these is provided in <b>Technical Appendix 7.1: Cultural Heritage Assets in the Inner Study Area (EIAR Volume 4)</b> along with their relative sensitivities.</p>	<p>Negligible to Medium</p>	<p>Other non-designated archaeological sites, monuments and areas of historic interest which do not have statutory protection but are curated by the local planning authority.</p>

## 7.6 Assessment of Effects

7.6.1 Taking account of the findings of the desk-based assessment and field survey, potential effects on cultural heritage associated with the construction and/or operation of the Proposed Development include:

- Direct (physical) effects on non-designated cultural heritage sites or features within the Site.
- Physical disturbance of known hitherto undiscovered sites or features, including unforeseen buried remains of archaeological interest.
- Effects on the settings of cultural heritage assets, resulting from intervisibility between the asset and the Proposed Development.
- Cumulative effects on the settings of cultural heritage assets from the Proposed Development in combination with other proposed developments in the locality.

### Mitigation by Design

7.6.2 The results of a preliminary desk-based assessment and targeted field survey, carried out during the route and alignment selection stages of the project, were digitised as GIS data showing the locations (and where relevant, the extents) of heritage assets. The layout of the Proposed Development, including the positioning of proposed poles and the siting of other infrastructure, has subsequently been designed to avoid or minimise direct effects and to minimise effects on the settings of heritage assets as far as possible. The layout shown on **Figure 7.1a-j: Cultural Heritage Assets within the Study Areas (EIAR Volume 3a)** therefore embeds design mitigation into the siting of the proposed poles and the ancillary infrastructure.

### Potential Effects

#### *Potential Construction Effects*

7.6.3 Any ground-breaking activities or ground disturbance associated with construction of the Proposed Development have the potential to disturb or destroy features of cultural heritage interest. Other construction activities, such as vehicle movements, storage of construction materials, and soil and overburden storage, also have the potential to cause permanent and irreversible impact on heritage assets.

7.6.4 The potential adverse, permanent, and irreversible direct impacts identified below would result primarily from ground disturbance associated with erection of the OHL poles and construction or upgrading of access tracks close to recorded heritage assets shown on **Figure 7.1a-j: Cultural Heritage Assets within the Study Areas (EIAR Volume 3a)**.

7.6.5 It is considered that there is potential for direct impact on heritage assets in the following circumstances:

- where heritage assets lie within 25 m of proposed pole locations (to allow for working areas);
- where heritage assets lie along proposed access routes, including where the proposed access route runs along the line of the proposed OHL (a nominal 6 m wide routing corridor is allowed);
- where heritage assets lie within proposed forestry felling areas (see **Figure 2.2: Land Take and Forestry Removal (EIAR Volume 3a)**); and
- where heritage assets lie within, or close to, proposed OHL pull-through working areas and construction compounds.

7.6.6 It is the intention that the Proposed Development would be subject to a Limit of Deviation (LOD) of 50 m in either direction along the Proposed Alignment, measured from each pole centre, and 30 m in either direction along the Proposed Alignment where the OHL passes through woodland. This allowance permits detailed design and construction activities to avoid environmental constraints or physical features as required within the LOD (see **Chapter 2: Description of Proposed Development, EIAR Volume 2**). Movement of infrastructure, or modification of proposed felling areas, would be dependent upon consideration of identified constraints within the micro-siting area and subject to advice from an Ecological Clerk of Works (ECoW).

7.6.7 No micro-siting of infrastructure or proposed felling areas would be undertaken where this could potentially affect cultural heritage interests without prior consultation with an appointed Archaeological Clerk of Works (ACoW), who would advise on the acceptability of any proposed realignments, and subject to consultation with the Council Archaeologist to agree appropriate mitigation, where there are potential impacts as a result.

#### Potential Construction (Direct) Effects: Inner Study Area

7.6.8 Eighty-eight non-designated heritage assets have been identified within the Inner Study Area and it is assessed that there is potential, in the absence of mitigation, for construction works to result in direct impacts on 23 of these:

- Five areas of relict and modern peat cuttings (7, 15, 16, 21 and 29), of negligible sensitivity, are crossed by the proposed OHL alignment, or lie partially within the LOD, at various locations towards the northeast end of the OHL. Construction works for the Proposed Development are likely to result in disturbance of the peat cuttings. The direct effect, on assets of negligible sensitivity, would be of low magnitude, resulting in an adverse effect of **negligible** significance (not significant in EIA terms). No mitigation is required in respect of the predicted effect on these assets.
- A section of a short relict field bank (3), of negligible sensitivity, is intersected by the open ground access route at Loch Cnoc a Choilich and vehicle access is likely to disturb or damage the turf bank. The direct effect, on an asset of negligible sensitivity, would be of low magnitude, resulting in an adverse effect of **negligible** significance (not significant in EIA terms). No mitigation is required in respect of the predicted effect on this asset.
- The poorly preserved remnants of a shieling (10), of negligible sensitivity, lie within the working area for Pole 604 at Cnoc an Iaruin. Construction works for the Proposed Development are likely to disturb or destroy the structural remains. The direct effect, on an asset of negligible sensitivity, would be of high magnitude, resulting in an adverse effect of **minor** significance (not significant in EIA terms). In line with best practice to conserve elements of the historic environment where practicable, mitigation measures to avoid or reduce the predicted effect are set out in **Section 7.7**.
- A head-dyke (22a) is intersected by the on-line open ground access route and workings areas for Pole 515 and Pole 516, to the north of Laxay township, an asset of medium sensitivity. A continuation of the dyke (22b) surrounds lazy bed cultivation on the loch shore that lies within the working area for Pole 509. Construction works for the Proposed Development and tracking of vehicles across the area would disturb a small section of the head-dyke and cultivation furrows. It is assessed that without mitigation, the direct effect, on elements individually of low sensitivity, would be of low magnitude, resulting in an adverse effect of minor significance (**not significant** in EIA terms). In line with best practice to conserve elements of the historic environment where practicable, mitigation measures to avoid or reduce the predicted effect are set out in **Section 7.7**.

- A stone structure (32d) and field bank (32e) within the settlement of Balallan (32), of medium sensitivity, lie within the working area for Pole 452 and Pole 458, respectively, and are intersected by an associated open ground access routes. An additional section of field bank (32g) lies within the working area for Pole 475. Construction works for the Proposed Development and tracking of vehicles across the area would destroy the structure and disturb small sections of the field banks. It is assessed that without mitigation, the direct effect, on elements individually of low sensitivity, would be of high magnitude, resulting in an adverse effect of **moderate** significance (significant in EIA terms). In line with the recommendations in Planning Advice Note 1/2013 Environmental impact assessment (PAN1/2013), mitigation measures to avoid or reduce the predicted significant effect are set out in **Section 7.7**.
- The remains of a shieling hut (35) lie within the working area for Pole 446, northwest of Balallan. Construction works for the Proposed Development would disturb the structural remains. It is assessed that without mitigation, the direct effect, on an asset of low sensitivity, would be of high magnitude, resulting in an adverse effect of **moderate** significance (significant in EIA terms). In line with the recommendations in PAN1/2013, mitigation measures to avoid or reduce the predicted significant effect are set out in **Section 7.7**.
- The remains of a field dyke (45b) and associated cultivation furrows to the west of Arivruaich township (45), of medium sensitivity, lie within the working area for Pole 377 and are crossed by an open ground access route from Pole 378. Construction works for the Proposed Development and tracked vehicular access across the area would disturb a small portion of the dyke and cultivation furrows. It is assessed that without mitigation, the direct effect, on elements individually of low sensitivity, would be of low magnitude, resulting in an adverse effect of **minor** significance (not significant in EIA terms). In line with best practice to conserve elements of the historic environment where practicable, mitigation measures to avoid or reduce the predicted effect are set out in **Section 7.7**.
- Cultivation furrows (46), of low sensitivity, partially bordered by a field dyke, are crossed by an open ground access route for Pole 372, to the west of Arivruaich. Construction works for the Proposed Development and tracking of vehicles across the cultivation furrows would damage their morphology. It is assessed that without mitigation, the direct effect, on an asset of low sensitivity, would be of low magnitude, resulting in an adverse effect of **minor** significance (not significant in EIA terms). In line with best practice to conserve elements of the historic environment where practicable, mitigation measures to avoid or reduce the predicted effect are set out in **Section 7.7**.
- A poorly preserved turf dyke (55a) lies within the working area for Pole 309 and is intersected by an associated open ground access route to the north, at Aline township, an asset of medium sensitivity. Construction works for the Proposed Development would disturb a small section of the dyke. It is assessed that without mitigation, the direct effect, on an element individually of low sensitivity, would be of low magnitude, resulting in an adverse effect of minor significance (**not significant** in EIA terms). In line with best practice to conserve elements of the historic environment where practicable, mitigation measures to avoid or reduce the predicted effect are set out in **Section 7.7**.
- Remains of a prehistoric woodland (58), preserved in peat and of medium sensitivity, are crossed by the open ground access route for Pole 278, west of Vigadale. Tracking of vehicles across the peat would disturb the underlying deposits and damage preserved organic material or artefacts. Further disturbance could potentially occur if Pole 279 and Pole 280 are moved southeast. It is assessed that without mitigation, the direct effect, on an asset of medium sensitivity, would be of high magnitude, resulting in an adverse effect of major significance (**significant** in EIA terms). In line with the recommendations in PAN1/2013, mitigation measures to avoid or reduce the predicted significant effect are set out in **Section 7.7**.
- A linear field boundary (64b) and an area of cultivation (64c), of low sensitivity, are intersected by an open ground access route for Pole 259, to the southwest of Scaladale and a sheepfold (64a) lies close to the access alignment. Tracked vehicular access along the route would disturb a small section of the turf bank (64b) and partially damage the lazy bed cultivation (64c); the sheepfold can easily be avoided. It is assessed that without mitigation, the direct effect, on an asset of low sensitivity, would be of low magnitude, resulting in an adverse effect of minor significance (**not significant** in EIA terms). In line with best practice to conserve



elements of the historic environment where practicable, mitigation measures to avoid or reduce the predicted effect are set out in **Section 7.7**.

- A field dyke (72i) lies within 30 m of the proposed alignment areas and is intersected by an open ground access route for Pole 119, at Ardhasaig township (72), an asset of medium sensitivity. Vehicular access across the dyke would disturb or damage a small section, while construction works could potentially disturb additional sections if Poles 119 to 121 are moved east. It is assessed that without mitigation, the direct effect, on an element individually of low sensitivity, would be of low magnitude, resulting in an adverse effect of minor significance (**not significant** in EIA terms). In line with best practice to conserve elements of the historic environment where practicable, mitigation measures to avoid or reduce the predicted effect are set out in **Section 7.7**.
- Two field banks (74a and 74b) and a substantial head-dyke (74c), of low sensitivity, are intersected by the proposed alignment and open ground access routes between Pole 93 and Pole 116, at Leachcan and Ardhasaig. Construction works for the Proposed Development and vehicular access would disturb or damage sections of the banks. It is assessed that without mitigation, the direct effect, on elements individually of low sensitivity, would be of low magnitude, resulting in an adverse effect of minor significance (**not significant** in EIA terms). In line with best practice to conserve elements of the historic environment where practicable, mitigation measures to avoid or reduce the predicted effect are set out in **Section 7.7**.
- An enclosure (75b) lies along the open ground access routes between Pole 91 to Pole 92, while a field dyke (75e) lies within working areas for Pole 92 and Pole 93, at West Tarbert township (75), an asset of medium sensitivity. Construction works for the Proposed Development and vehicular access would disturb or damage part of the enclosure and small sections of the field bank. It is assessed that without mitigation, the direct effect, on elements individually of low sensitivity, would be of medium magnitude, resulting in an adverse effect of moderate significance (**significant** in EIA terms). In line with the recommendations in PAN1/2013, mitigation measures to avoid or reduce the predicted significant effect are set out in **Section 7.7**.
- Several field banks (76a-c and 76e) and a head-dyke (76g), of low sensitivity, fall within working areas and open ground access routes between Pole 76 and Pole 91, at Tota Glas township (76), an asset of medium sensitivity. The remains of a shieling (76f) also lie between Pole 82 and Pole 83. Construction works for the Proposed Development and vehicular access would disturb sections of the field banks and could damage the shieling (76f). It is assessed that without mitigation, the direct effect, on elements individually of low sensitivity, would be of medium magnitude, resulting in adverse effects of moderate significance (**significant** in EIA terms). In line with the recommendations in PAN1/2013, mitigation measures to avoid or reduce the predicted significant effect are set out in **Section 7.7**.
- The western end of a field bank (84), of low sensitivity, lies between Pole 70 and Pole 71 southwest of Tarbert, while an open ground access route, from the east, runs alongside the bank. Access alongside the bank could disturb its structure. It is assessed that without mitigation, the direct effect, on an asset of low sensitivity, would be of high magnitude, resulting in an adverse effect of moderate (**significant** in EIA terms) significance. In line with the recommendations in PAN1/2013, mitigation measures to avoid or reduce the predicted significant effect are set out in **Section 7.7**.
- A turf enclosure bank (86), of low sensitivity, lies 40 m to the northeast of Pole 72, south of Tarbert and is intersected by the route of an open ground access route that runs from the east alongside the bank. Access alongside the bank could disturb or damage a large section of the earthwork. It is assessed that without mitigation, the direct effect, on an asset of low sensitivity, would be of high magnitude, resulting in an adverse effect of moderate (**significant** in EIA terms) significance. In line with the recommendations in PAN1/2013, mitigation measures to avoid or reduce the predicted significant effect are set out in **Section 7.7**.
- A head-dyke (87), of low sensitivity, is intersected by an open ground access route between Pole 66 and Pole 67, to the southwest of Tarbert. Vehicular access across the bank would disturb a small section of the earthwork. It is assessed that without mitigation, the direct effect, on an asset of low sensitivity, would be of low magnitude, resulting in an adverse effect of minor significance (**not significant** in EIA terms). In line with

best practice to conserve elements of the historic environment where practicable, mitigation measures to avoid or reduce the predicted effect are set out in **Section 7.7**.

- A linear turf bank (88), of low sensitivity, lies within 40 m to the northeast of Pole 28 at Horsacleit and is crossed by an open ground access route. Vehicular access across the bank could damage a section of the earthwork. It is assessed that without mitigation, the direct effect, on an asset of low sensitivity, would be of low magnitude, resulting in an adverse effect of minor significance (**not significant** in EIA terms). In line with best practice to conserve elements of the historic environment where practicable, mitigation measures to avoid or reduce the predicted effect are set out in **Section 7.7**.

7.6.9 If proposed poles or proposed access track routes were to be relocated within the LOD, it is possible that there could be direct adverse impacts on a further 18 of the identified heritage assets or features within the Site and in proximity to revised access routes. In each case assessed above, it is unlikely that micrositing would be required to the extent that the Proposed Development would impinge on the recorded remains. Nevertheless, mitigation measures are set out in **Section 7.7** to ensure that, where practical, the recorded heritage assets are avoided and, where direct impacts are unavoidable, measures are put in place to either minimise the direct effects or to record any assets lost or damaged as a result of construction work, where appropriate.

7.6.10 In addition to the impacts identified above, there is the possibility that any ground disturbance works in areas required for construction of the Proposed Development could disturb or destroy hitherto unrecorded buried archaeological remains present in affected areas.

7.6.11 It is assessed that there is only limited potential that construction works associated with the Proposed Development could have a high magnitude direct adverse effect on hitherto undiscovered remains likely to be of low to medium sensitivity (where the Site passes through or close to pre-clearance townships at Balallan (32), Arivruaich (45), Ardhasaig (72) and Tota Glas (76)) resulting in a moderate adverse effect (**significant** in EIA terms) prior to adoption of any mitigation. Measures are proposed in **Section 7.7** to ensure that any discoveries are appropriately addressed.

#### Setting Effects During Construction

7.6.12 Construction activity such as pull-through/machine positioning and scaffolding for pole erection have the potential to affect the setting of sites of heritage assets within the Outer Study Area (which includes the Inner Study Area). These construction activities would be temporary, resulting in only short-term/low magnitude effects on heritage assets within the Outer Study Area and would have no permanent effects. As such, temporary impacts on the settings of heritage assets have not been assessed on a site-by-site basis.

#### *Potential Operational Effects*

7.6.13 It is noted that the Proposed Development, as described in **Chapter 2: Description of Proposed Development (EIAR Volume 2)**, includes horizontal and vertical limits of deviation to allow for micrositing and variation of pole heights. The Proposed Development would be subject to a horizontal LOD of up to 50 m in either direction along the Proposed Alignment (reduced to 30 m through woodland) and a vertical LOD allowing variation in pole heights up to a maximum of 18 m above ground level.

7.6.14 There are no heritage assets likely to receive a direct effect during operation of the Proposed Development as any required maintenance or replacement works would use low ground pressure vehicles and trackway panels to facilitate these works, avoiding damage to, and compaction of, the ground.

#### Setting Effects During Operation

7.6.15 The Proposed Development could result in adverse effects on the setting of cultural heritage assets, within the Outer Study Area, although such effects would diminish with increasing distance from the site. At distances greater than 2 km, it is considered that, in most instances, the Proposed Development would not appreciably alter features of the setting of the heritage assets that contribute to their cultural significance, neither would it appreciably alter how a heritage asset is understood, appreciated, and experienced.

- 7.6.16 **Technical Appendix 7.2: Cultural Heritage Assets in the Outer Study Area (EIAR Volume 4)** contains tabulated assessments of the predicted effects on the settings of designated heritage assets from which there is some degree of predicted theoretical visibility of the Proposed Development based on analysis of the ZTV (**EIAR Volume 3a: Figure 6.1: ZTV, Study Area and Viewpoint Locations**).
- 7.6.17 There are no designated heritage assets beyond 2 km from the Site that have been identified through appraisal of the ZTV, or notified through consultation with HES and CnES, that require consideration of potential impacts on their settings.
- 7.6.18 The assessment of operational effects on the settings of heritage assets has been carried out with reference to the layout of the Proposed Development and the locations of the designated heritage assets shown on **Figure 7.1a-j: Cultural Heritage Assets within the Study Areas (EIAR Volume 3a)**. For the methodology used for assessment of potential effect significance refer to paragraph 7.4.17.
- 7.6.19 The following discussion addresses the effect of the Proposed Development on the setting of Druim Dubh stone circle (SM 5504) and the Pairc Land Raiders Cairn (MWE 118897), identified by HES and CnES as requiring detailed consideration. The assessment is supported with photomontage visualisations (**EIAR Volume 3b: Figure 6.23a-d: Viewpoint 17** and **Figure 7.2: Photomontage from Druim Dubh Stone Circle (SM 5504)**).
- 7.6.20 The remaining designated assets within the Outer Study Area have not been identified as requiring detailed consideration, but they are assessed in tabulated summary format in **Technical Appendix 7.2: Cultural Heritage Assets in the Inner Study Area (EIA Volume 4)**. Where there is predicted visibility of the Proposed Development from their locations, a minor adverse effect on their setting is predicted prior to the decommissioning of the existing OHL, upon which the impact will principally be characterised as a like-for-like replacement of the visible infrastructure.
- Druim Dubh Stone Circle (SM 5504) (**EIAR Volume 3a: Figure 7.2: Photomontage from Druim Dubh Stone Circle (SM 5504)**)
- 7.6.21 The remains of this monument consist of 16 fallen stones arranged in an elliptical ring measuring 28 m by 21 m, around 4 km southwest of Stornoway. It is one of only ten megalithic rings in the Western Isles, with the potential to provide information on the construction, use and later abandonment of these prehistoric monuments. Nine of the stones are buried beneath peat while the visible stones have been exposed by peat cutting. The site is a Scheduled Monument, of heritage value at the national level and is assessed as being of high sensitivity.
- 7.6.22 The stone circle stands on a low natural mound around 250 m west of the A859 road junction with the B897, directly beside the A859, with panoramic views overlooking undulating moorland. It is likely that the broad and uninterrupted views over the surroundings, extending to the low peaks visible on the horizon to the north and south, represent important aspects of the monument's setting. The view to the east-southeast is obscured in the foreground by the former Halfway Garage buildings and an adjacent copse of trees, beyond which lie three turbines for Arnish Moor Wind Farm, 1 km away. Peat cuttings occupy the foreground to the northeast and west, while flat bog and lochans extend across the northwest and south. A wind turbine at Creed Enterprise Park is visible to the northeast, 1.9 km away.
- 7.6.23 The existing 132 kV OHL approaches from the northeast and passes within 15 m of Scheduled Monument, continuing west-southwest with a branching line heading southeast toward the Arnish Moor turbines. The photomontage from the stone circle (**EIAR Volume 3b: Figure 7.2: Photomontage from Druim Dubh Stone Circle (SM 5504)**) demonstrates how the existing OHL is present in views arcing from the northeast to the south and is frequently backclothed by the moorland. The Proposed Development would replace the existing OHL, at a greater distance from the monument, at its closest being 185 m to the northwest of the stone circle. There would not be a significant variation from the height of the existing OHL poles. The ZTV analysis indicates that, from the stone circle and its immediate vicinity, there would be visibility of 91 poles of the Proposed Development. Upon completion of the Proposed Development, the existing 132kV OHL would be decommissioned and removed.

7.6.24 Overall, the impact of the Proposed Development on the setting of the stone circle is assessed as being of negligible magnitude, resulting in an adverse effect, based on professional judgement, of **negligible** significance. A temporary impact of low magnitude (**minor** significance) would be likely to occur during construction of the Proposed Development, prior to the decommissioning of the existing OHL, during which time there will be an increase in the number of poles visible from the combined infrastructure, in the vicinity of the monument. Upon dismantling the existing OHL, the impact would be reduced in magnitude due to the near like-for-like replacement of infrastructure at a greater distance from the stone circle. The key panoramic views from the stone circle across the surrounding moorland would be unaffected. The character and cultural significance of the monument in its lowland setting would not be diminished by the presence of the Proposed Development and the integrity of its setting would be preserved.

Pairc Deer Land Raiders Cairn (MWE 118897)

7.6.25 This commemorative monument, consisting of a stone beehive-shaped structure, with an internal circular stair to a viewing platform overlooking the western end of Loch Erisort, was constructed in 1994. It commemorates the Pairc Deer Raid of 1887, a significant event in the history of the local townships and of Highland Land Law Reform.

7.6.26 The monument sits in a slightly elevated position on a low hill to the west of the A859 road, southwest of Balallan, within the valley between Loch Strandavat and the western tip of Loch Erisort, which forms the narrow neck of land connecting the former Pairc estate to the rest of Lewis. Views of the surrounding rough pasture are enclosed by relief rising to the southeast and northwest. The prominence of the monument to the side of the A859 and the view to the southeast, overlooking the land route into the Pairc Estate, are of principal importance to the monument and the event it commemorates.

7.6.27 The photomontage from the monument (**EIAR Volume 3b: Figure 6.23a-d: Viewpoint 17**) demonstrates how the existing 132 kV OHL and a parallel 33 kV OHL approach from the northeast, from the direction of Balallan, and pass to the northwest of the monument at a distance of 50 m, continuing over a ridge to the southwest. The Proposed Development would replace the existing 132 kV OHL at a greater distance, at its closest being 130 m to the northwest of the monument. There would not be a significant variation from the height of the existing OHL poles. The ZTV analysis indicates that, from the monument and its immediate vicinity, there would be visibility of 82 poles of the Proposed Development. Upon completion of the Proposed Development, the existing 132 kV OHL would be decommissioned and removed.

7.6.28 Overall, the impact of the Proposed Development on the setting of the monument is assessed as being of negligible magnitude, resulting in an adverse effect, based on professional judgement, of **negligible** significance. A temporary impact of low magnitude (**minor** significance) would be likely to occur during construction of the Proposed Development, prior to the decommissioning of the existing OHL, during which time there will be an increase in the number of poles visible from the combined infrastructure, in the vicinity of the monument. Upon dismantling the existing OHL, the impact would be reduced in magnitude due to the near like-for-like replacement of infrastructure at a greater distance from the asset. The key views overlooking the surrounding pasture environment and land route to the Pairc Estate would be unaffected. The prominence and commemorative significance of the monument in its historic setting would not be diminished by the presence of the Proposed Development.

## 7.7 Mitigation

7.7.1 Planning Advice Note 1/2013: Environmental impact assessment (PAN1/2013) describes mitigation as a hierarchy of measures: prevention, reduction, and compensatory (offset) measures. Prevention and reduction measures can be achieved through design, whilst compensatory measures offset effects that have not been prevented or reduced.

7.7.2 Historic Environment Policy for Scotland (HEPS) requires the recognition, care and sustainable management of the historic environment, and the emphasis in Planning Advice Note (PAN) 2/2011: Planning and Archaeology

(PAN2) is for the preservation of important remains in situ where practicable and by record where preservation is not possible. The mitigation measures presented below take this policy advice and planning guidance into account and provide various options for ensuring that, where practical, surviving assets are preserved intact to retain the present historic elements of the landscape or adequately recorded to acceptable standards prior to any adverse impact occurring.

- 7.7.3 All mitigation works presented in the following paragraphs would take place prior to or, where appropriate, during, the construction of the Proposed Development. The scope of works would be detailed in one or more Written Scheme(s) of Investigations (WSI) developed in consultation with (and subject to the agreement of) CnES.
- 7.7.4 A professionally qualified Archaeological Contractor would be appointed to act as an Archaeological Clerk of Works (ACoW) for the duration of the development works (including forestry felling works and during the construction phase). The role of the ACoW would be to provide advice to the Appointed Contractor regarding micro-siting of development components, where there is a possibility of intersecting with identified heritage assets, and to undertake archaeological monitoring of topsoil stripping operation in areas designated and approved by the Council's Archaeological Advisors. The activities of the ACoW would be carried out according to the scope of work and terms specified under the WSI approved by CnES.
- 7.7.5 Mitigation proposals are set out on a site-by-site basis in **Technical Appendix 7.1: Cultural Heritage Assets in the Inner Study Area (EIAR Volume 4)**.

### Mitigation During Construction

#### *Preservation In Situ*

- 7.7.6 Should micro-siting of the OHL be required, associated forestry felling works, poles and associated infrastructure would be located, where possible, away from heritage assets.
- 7.7.7 Heritage assets would be excluded from construction working areas, ground-breaking works at proposed pole positions, and construction access tracks, as far as reasonably practicable and as advised by the appointed ACoW.
- 7.7.8 Known heritage assets and archaeologically sensitive areas, would not be used for storage of material or as parking areas for vehicles or machinery.
- 7.7.9 Where linear assets survive as upstanding features (principally field banks and drystone walls) access tracks would be routed through any existing gates or through broken or less well-preserved sections of banks or walls wherever possible, within the consented LOD. Disturbance to field banks, walls, relict rig and furrow cultivation remains, and relict peat cuttings would be kept to the minimum necessary to facilitate the Proposed Development, to ensure that most of the remains would be retained intact.
- 7.7.10 The following heritage assets would be marked out for avoidance during the construction phase:
- Shieling huts (9a-b, 10, 11a, 11d, 33-35, 49, 50, and 68)
  - Township elements (26b, 32a-d, 32f, 45d-h, 72j, 74e, 75a-b, 76f)
  - Structures (5 and 39)
  - Enclosures (28)
  - Clearance cairns (36)
- 7.7.11 The assets would be identified by placing high visibility markers a minimum of 5 m from the outer limits of the visible remains, facing the working area. Construction contractors would be made aware of the need to avoid these assets during construction works and any markers would be removed upon completion of the Proposed Development.
- 7.7.12 The upstanding/visual remains of two additional assets, comprising sections of linear bank (63 and 88), would be demarcated around the ends of the features, facing the working area, and avoided during construction works.

### *Micrositing*

7.7.13 Any required micrositing of proposed pole positions or access routes could result in direct adverse effects on any identified heritage asset within the LOD. In order to mitigate potential impacts on identified heritage assets, no micrositing would take place without prior consultation with the appointed ACoW. Any identified heritage asset or feature that falls within or close to a revised working area or access route would be marked out and avoided in line with the mitigation outlined above in **Section 7.7.6: Preservation in Situ**.

### *Watching Briefs*

7.7.14 The Applicant would seek to agree the scope of the archaeological watching brief(s) with CnES in advance of development works (forestry felling activity and construction phase). The scope of the agreed works would be confirmed in a Written Scheme of Investigation (WSI) to be signed-off prior to commencement of the development work, including enabling works.

7.7.15 Taking account of the avoidance through design, and the character of the identified cultural heritage baseline, it is recommended that watching briefs be carried out at the following locations:

- Laxay township (22): where construction works and access tracks cross the head-dyke (22a) and lazy bed cultivation (22b). An archaeological watching brief would be carried out during any ground-breaking works across the turf head-dyke and cultivation furrows, to identify and record any potential surviving remains that may be encountered. Establishment of vehicular access across the area would also be monitored to ensure below-ground deposits are not disturbed or that any disturbance is kept to a minimum.
- Balallan township (32): where construction works and access tracks cross any field banks (32e and 32g). An archaeological watching brief would be carried out during any ground-breaking works across the field banks, to identify and record any potential surviving remains that may be encountered.
- Arivrvaich township (45): where construction works and access tracks cross a field bank (45b) and associated cultivation furrows. An archaeological watching brief would be carried out during any ground-breaking works across the field bank and cultivation furrows, to identify and record any potential surviving remains that may be encountered.
- Arivrvaich cultivation (46): where open ground access tracks cross cultivation furrows south of a field dyke. If access across the furrows cannot be avoided, via access to the north of the dyke, establishment of the vehicular access route will be monitored to ensure minimal damage to the asset.
- Ardvourlie preserved woodland (58): where construction works and access tracks cross an area of prehistoric woodland preserved in peat. An archaeological watching brief would be carried out during any ground-breaking works within the peat, to identify and record any surviving remains that may be encountered. Establishment of the open ground access route across the area would be monitored to record any archaeological remains or deposits that may be exposed.
- Scaladale cultivation (64): where an open ground access track passes areas of lazy bed cultivation (64c) and crosses a field boundary (64b). An archaeological watching brief would be carried out during establishment of a vehicular access route to ensure minimal disturbance of cultivation furrows. In addition, an archaeological watching brief would be carried out during any ground-breaking required across the field boundary, to identify and record the structure of the field bank and any potential surviving remains that may be encountered.
- Ardhasaig township (72): where construction works and open ground access tracks cross any field boundary banks (72h and 72i). An archaeological watching brief would be carried out during any ground-breaking works across the banks and during establishment of the access route, to identify and record any potential surviving remains that may be encountered.
- Caolas-Na-Sgeir and Leachcan township (74): where construction works and open ground access cross two field banks (74a and 74b) and a head-dyke (74c). An archaeological watching brief would be carried out during any ground-breaking works and establishment of the access route across the banks and head-dyke, to identify and record any potential surviving remains that may be encountered.

- West Tarbert township: where construction works and an open ground access track pass an enclosure (75b) in addition to crossing a head-dyke (75e). An archaeological watching brief would be carried out during any ground-breaking works and establishment of the access route, in proximity to these elements, to identify and record any potential surviving remains that may be encountered.
- Tota Glas township (76): where construction works and open ground access cross several field dykes (76a-c and 76e) and a head-dyke (76g). An archaeological watching brief would be carried out during any ground-breaking works and establishment of the access route, across the dyke, to identify and record any potential surviving remains that may be encountered.
- South of Tarbert: where construction works and associated access routes cross or pass field banks (84, 86 and 87). An archaeological watching brief would be carried out during any ground-breaking works and establishment of the access route, across the banks, to identify and record any potential surviving remains that may be encountered.

7.7.16 If significant discoveries are made during the watching briefs and preservation in situ is not possible, provision would be made for an appropriate amount of investigation and recording to be agreed in writing with CnES.

7.7.17 Based on the results of the desk-based study and the field survey, there are no other specific areas where construction works are expected to encounter buried archaeological remains. There is however a low to moderate potential for hitherto undiscovered archaeological remains to be present within the Inner Study Area and it may be that CnES would require archaeological monitoring in areas other than those identified above. Therefore, if required under the terms of a condition of consent, the scope of any other required archaeological watching brief(s) would be agreed through consultation with CnES in advance of development works commencing and would be set out in the WSI.

#### *Post-Excavation Assessment and Reporting*

7.7.18 If new, archaeologically significant discoveries are made during archaeological monitoring, and it is not possible to preserve the discovered remains in situ, provision will be made for the excavation where necessary, of any archaeological deposits encountered. The provision will include the consequent production of written reports, on the findings, with post-excavation analysis and publication of the results of the works, where appropriate.

#### *Construction Guidelines*

7.7.19 Written guidelines will be set out in the WSI, outlining the need to avoid causing unnecessary damage to known heritage assets. The guidelines will set out arrangements for calling upon retained professional support if buried archaeological remains of potential archaeological interest (such as building remains, human remains, artefacts, etc.) should be discovered during any construction activities.

7.7.20 The guidelines will make clear the legal responsibilities placed upon those who disturb artefacts or human remains.

#### *Monitoring*

7.7.21 Post-construction monitoring would be carried out to:

- check that marking out of heritage assets has been effective and that none of the heritage assets have been disturbed during forestry felling/construction works; and
- check that all markers have been removed from heritage assets following completion of the Proposed Development.

### **Mitigation During Operation**

7.7.22 Construction of any new temporary access tracks required for maintenance during the operation of the Proposed Development would take into account cultural heritage assets based on the constraints mapping provided (**EIAR Volume 3a: Figure 7.1a-j: Cultural Heritage Assets within the Study Areas**).

## 7.8 Residual Effects

### Residual Construction Effects

7.8.1 Residual construction effects are set out on a site-by-site basis in **Technical Appendix 7.1: Cultural Heritage Assets in the Inner Study Area (EIAR Volume 4)**.

7.8.2 Taking account of the mitigation proposals set out above, the following residual construction effects are predicted:

- **Minor** residual effects on elements of Laxay (22a and 22b), Balallan (32e and 32g), Arivruaich (45b and 46) and Aline (55a) townships, as a consequence of minimal disturbance during construction of the Proposed Development. Any impact of the Proposed Development on surviving buried archaeological remains or deposits would be offset by archaeological investigations and recording to a standard acceptable to CnES.
- A **minor** residual effect on the preserved prehistoric woodland at Ardvoirie (58) as a consequence of minimal disturbance during construction of the Proposed Development.
- A **minor** residual effect on the field boundary (64b) and cultivation furrows (64c) at Scaladale, as a consequence of minimal disturbance during open ground access for the Proposed Development.
- **Minor** residual effects on elements of Ardhasaig (72h and 72i), Leachcan (74a-c), West Tarbert (75e) and Tota Glas (76a-c, 76e and 76g) townships, as a consequence of minimal disturbance during construction of the Proposed Development. Any impact of the Proposed Development on buried archaeological remains or deposits would be offset by archaeological investigations and recording to a standard acceptable to CnES.
- A **minor** residual effect on the field banks (84 and 86 and 87) to the southwest of Tarbert, as a consequence of minimal disturbance during construction of the Proposed Development.
- **Negligible** residual effects are predicted on five areas of traditional peat cutting (7, 15, 16, 21 and 29), as a consequence of minimal disturbance during construction of the Proposed Development.

7.8.3 Where upstanding heritage assets have been marked off and avoided for the duration of the construction works, there would be no residual effects on those assets.

### Residual Operational Effects

7.8.4 During its operational lifetime, the residual effects of the Proposed Development on the settings of heritage assets in the Outer Study Area would be the same as the predicted effects. See **Technical Appendix 7.2 (EIAR Volume 4)** for a tabulated assessment of the predicted operational effects.

7.8.5 All impacts, affecting the settings of heritage assets in the surrounding landscape, would give rise to residual effects that are either of **minor** or **negligible** significance.

## 7.9 Cumulative Effects

### Construction Effects

7.9.1 Cumulative construction effects arise from the Proposed Development in combination with developments that have the potential to impact the same heritage assets.

7.9.2 The footprint of Aignish Wind Farm (in planning) lies to the north of Loch Briodag, outside the area for potential direct effects from construction of the Proposed Development. No heritage assets that would be potentially affected by the construction of the Proposed Development would be directly affected by construction works related to Aignish Wind Farm.

7.9.3 No other cumulative effects from the Proposed Development in combination with other developments are predicted.



## Operational Effects

- 7.9.4 The presence of the Proposed Development in combination with other proposed developments may have an adverse cumulative effect on the setting of heritage assets in the Outer Study Area.
- 7.9.5 The identification of likely cumulative effects focuses upon the residual operational effects of the Proposed Development on the setting of cultural heritage assets in combination with cumulative developments. The cumulative developments considered within this assessment are restricted to those that are consented, at the application stage, or are reasonably foreseeable. Those developments that are operational or under construction have been considered as part of the current baseline conditions.
- 7.9.6 There is predicted visibility of Aignish Wind Farm (in planning) and Stornoway Wind Farm (consented) from Druim Dubh Stone Circle (SM 5504), which lies around 700 m south-southeast of the nearest proposed turbine locations. In views from the monument, the cumulative wind farms would be visible beyond the Proposed Development, in views in an arc from the northeast to west-northwest. The planned turbines would constitute a new addition in distant views from the stone circle, while the Proposed Development would replace the existing 132 kV OHL. Taking this into consideration, it is assessed that the cumulative effect of the addition of the Proposed Development to, and in combination with Aignish and Stornoway Wind Farms, on the setting of Druim Dubh stone circle would be one of no more than low magnitude and of **minor** significance, with the Proposed Development contributing less to the cumulative impact than would the two cumulative wind farms.

## 7.10 Summary

- 7.10.1 A desk-based assessment and walkover field survey have been carried out for the Proposed Development. The assessment has been informed by comments and information supplied by HES and CnES.
- 7.10.2 A total of 88 non-designated heritage assets have been identified within the Inner Study Area. The majority of these are associated with medieval or later settlement and agricultural activities, although possible stone settings and a quernstone findspot relating to prehistoric occupation, and a preserved wood of prehistoric date, are recorded close to the later settlements.
- 7.10.3 The majority of the Inner Study Area comprises rough pasture with no evidence for recent agricultural improvement. Crofting townships and associated smallholdings about the road, with extensive areas of traditional peat cutting throughout the surrounding areas, amidst numerous lochs and lochans, along with an area of 20th century commercial forestry plantation, to the north of Aline. It is considered that where the Site crosses modern commercial forestry plantation the survival of both the historic character of the landscape and any hitherto unknown features in these areas would have been appreciably compromised and the potential for hitherto undiscovered archaeological remains to survive in these areas is considered to be negligible. There is a moderate potential for buried archaeological remains to survive within peat in the area of preserved prehistoric woodland (58) at Vigadale. In those areas where relict features of the former crofting townships survive, it is considered that there is a low to moderate potential for further buried archaeology to be present, with an increased potential for buried remains to survive particularly where the Proposed Development passes Ardhasaig (72) and West Tarbert (75). Concentrated groupings of shieling huts are also considered to have a moderate potential for buried remains, including Airigh A' Bhaile Ghlais (11) and Loch A' Mhorghain (69).
- 7.10.4 There is potential for construction works within the Inner Study Area to result in direct effects on 23 heritage assets. In addition, 18 heritage assets lie within the micro-siting allowance (LOD) and could be affected by micro-siting of proposed poles or deviation in open ground access track routes. In the absence of mitigation, one of these impacts (on a preserved prehistoric woodland (58)) is assessed as being potentially of **major** significance (significant in EIA terms) and 18 (on eight shieling sites (9a-b, 11a, 11d, 33-35, 49, 50 and 68a-b), six townships (26b, 32a-g, 45b, 45d-h, 72h-j, 75a-b, 75e, 76a-c and 76e-g), a clearance cairn (36), a stone enclosure (39) and two field banks (84 and 86)) are assessed as being potentially of **moderate** significance (significant in EIA terms). The other impacts are assessed as not being significant.

- 7.10.5 Mitigation measures have been set out that would avoid, reduce or offset the predicted effects, and residual construction effects of no more than **minor** significance (not significant in EIA terms) are predicted. The proposed mitigation includes the demarcation of assets for preservation in-situ and the implementation of watching briefs during ground-breaking works and establishment of access requirements across specified areas with increased potential for the presence of archaeological features or deposits. If significant discoveries are made during the watching briefs and preservation in situ is not possible, provision would be made for an appropriate amount of investigation and recording to a programme to be agreed in writing with CnES.
- 7.10.6 Three Scheduled Monuments, four Category B Listed Buildings, nine Category C Listed Buildings and one Inventory Garden and Designed Landscape have been identified within the 2 km Outer Study Area, from which there is some degree of theoretical visibility of one or more elements of the Proposed Development.
- 7.10.7 The assessment has resulted in the identification of a **negligible** significant effect (not significant in EIA terms) on the setting of one Scheduled Monument (Druim Dubh stone circle (SM 5504)). The Proposed Development would constitute a largely like-for-like replacement of the existing 132 kV OHL, with no significant change to the surroundings of the designated heritage asset. A temporary impact of minor magnitude is predicted or the period immediately prior to the decommissioning of the existing OHL, due to the combination of both alignments being in place. It would remain possible for any visitor to the monument to understand and appreciate the monument and its setting. As such the integrity of the setting of the monument and its capacity to inform and convey its cultural significance, would not be compromised. The effect, which would not adversely affect the cultural significance of the asset, would last for the duration of the operational phase of the Proposed Development.
- 7.10.8 The cumulative effect of the Proposed Development in combination with other cumulative developments in the vicinity is considered to be not significant.

**Table 7.6: Summary of Potential Significant Effects of the Proposed Development**

Likely Significant Effect	Mitigation Proposed	Means of Implementation	Outcome / Residual Effect
<b>Construction</b>			
Major adverse effect on Ardvourlie preserved prehistoric woodland (58).	Keep disturbance of peat to a minimum. Archaeological watching brief to be carried out during any ground-breaking works within peat and establishment of the open ground access route.	Scope of work specified under the WSI approved by CnES.	Not significant.
Moderate adverse effect on eight shieling hut sites (9a-b, 11a, 11d, 33-35, 49, 50 and 68a-b).	Mark off and avoid during construction works.	Scope of work specified under the WSI approved by CnES.	Not significant.
Moderate adverse effect on one element of Valtos township (26).	Mark off structure 26b and avoid during construction work.	Scope of work specified under the WSI approved by CnES.	Not significant.
Moderate adverse effect on elements of Balallan township (32).	Mark off elements 32a-d and 32f; avoid during construction work. Archaeological watching brief to be carried out during any ground-breaking works across field banks 32e and 32g.	Scope of work specified under the WSI approved by CnES.	Not significant.

**Table 7.6: Summary of Potential Significant Effects of the Proposed Development**

Moderate adverse effect on a clearance cairn (36) and a stone enclosure (39).	Mark off and avoid during construction works.	Scope of work specified under the WSI approved by CnES.	Not significant.
Moderate adverse effect on elements of Arivruaich township (45).	Mark off elements 45d-h and avoid during construction work.  Archaeological watching brief to be carried out during any ground-breaking works across field bank 45b and associated cultivation furrows.	Scope of work specified under the WSI approved by CnES.	Not significant.
Moderate adverse effect on elements of Ardhasaig township (72).	Mark off structure 72j and avoid during construction.  Keep disturbance to field banks to a minimum.  Archaeological watching brief to be carried out during any ground-breaking works and establishment of the access route across field banks 72h and 72i.	Scope of work specified under the WSI approved by CnES.	Not significant.
Moderate adverse effect on elements of West Tarbert township (75).	Mark off structures 75a and enclosure 75b; avoid during construction.  Keep disturbance to head dyke to a minimum.  Archaeological watching brief to be carried out during any ground-breaking works and establishment of the access route across head dyke 75e.	Scope of work specified under the WSI approved by CnES.	Not significant.
Moderate adverse effect on elements of Tota Glas township (76).	Mark off structure 76f and avoid during construction.  Keep disturbance to field banks to a minimum.  Archaeological watching brief to be carried out during any ground-breaking works and establishment of the access route across field banks 76a-c, 76e and 76g.	Scope of work specified under the WSI approved by CnES.	Not significant.
Moderate adverse effect on two field banks (84 and 86).	Keep disturbance to field bank to a minimum.	Scope of work specified under the WSI approved by CnES.	Not significant.

**Table 7.6: Summary of Potential Significant Effects of the Proposed Development**

	Archaeological watching brief to be carried out during any ground-breaking works and establishment of the access route across the field banks.		
Potential significant adverse effects on identified heritage assets of low sensitivity or greater, within the LOD for proposed pole locations and off-line access routes.	No micrositing without consultation with ACoW. Mark off assets in proximity to microsited working areas (inc 5, 9a-b, 11a, 11d, 28, 33, 34, 36, 39, 49, 50 and 68); avoid during construction works.  Keep disturbance to affected field banks to a minimum.	Scope of work specified under the WSI approved by CnES.	Not significant.
<b>Operation</b>			
Negligible adverse effects on the settings of three Scheduled Monuments, 11 Listed Buildings, one GDL and one Conservation Area.	None proposed.	Not applicable.	Not significant.
Negligible adverse effects on the setting of the Pairc Land Raiders Cairn commemorative monument (MWE 118897)	None proposed.	Not applicable.	Not significant.
<b>Cumulative Construction</b>			
None.	None.	Not applicable.	Not significant.
<b>Cumulative Operation</b>			
Minor cumulative adverse effect on the setting of Druim Dubh stone circle (SM 5504).	None proposed.	Not applicable.	Not significant.

## 8. ECOLOGY AND NATURE CONSERVATION

### 8.1 Introduction

8.1.1 This chapter assesses the potential effects on ecology and nature conservation (ecological features) associated with the construction and operation of the Proposed Development. This chapter (and its associated Figures and Appendices) is not intended to be read as a standalone assessment and reference should be made to the introductory chapters of this Environmental Impact Assessment (EIA) Report (**EIAR Volume 2, Chapters 1-5**).

8.1.2 The assessment has been carried out by Nadine Little, Principal Ecologist at Ramboll UK Limited (Ramboll). Nadine is an Associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM) with a Masters in Wildlife Biology and Conservation and nine years' experience of undertaking ecology surveys and Ecological Impact Assessments (EclAs).

8.1.3 This chapter is supported by the following Figures and Technical Appendices:

- Volume 3a: Figures
  - Figure 8.1: Ecology Constraints;
  - Figure 8.2: Phase 1 Habitats;
  - Figure 8.3: National Vegetation Classification (NVC); and
  - Figure 8.4: Groundwater Dependent Terrestrial Ecosystems (GWDTEs).
- Volume 4: Technical Appendices
  - Technical Appendix 8.1: Ecology Methodology and Results; and
  - Technical Appendix 8.2: Outline Habitat Management Plan (OHMP).

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

### 8.2 Assessment Methodology

#### Scope of Assessment

8.2.1 The chapter considers effects on:

- designated nature conservation sites, such as Special Areas of Conservation (SACs);
- sensitive habitats, such as peatlands and GWDTEs; and
- protected species, such as otter *Lutra lutra* and bat species.

8.2.2 The specific objectives of this chapter and the accompanying Technical Appendices are to:

- describe the assessment methodology and significance criteria used in completing the impact assessment;
- describe the ecological baseline of the Proposed Development and its zone of influence (ZOI)<sup>1</sup>, including designated nature conservation sites, habitats and protected species, and, thereby, identify the ecological features that will be the focus of this assessment;
- evaluate the sensitivity of each ecological feature;
- describe the potential impacts from the Proposed Development, both direct and indirect, on ecological features and assess whether they result in likely significant adverse effects for the ecological features;
- describe the mitigation measures proposed to avoid, reduce and offset likely significant adverse effects; and
- assess the significance of residual effects remaining following the implementation of mitigation.

8.2.3 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 developments are

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<sup>1</sup> The area over which ecological features may be subject to significant effects as a result of the Proposed Development and its associated activities. In this case, the ZOI is considered to be a buffer of up to 10 km around the Site.

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'.

8.2.4 The assessment is based on the Proposed Development as described in **Chapter 2: Description of Proposed Development (EIAR Volume 2)** and aligns with best practice EclA Guidelines developed by CIEEM<sup>2</sup>. Potential impacts and effects on ornithological features are addressed separately in **Chapter 9: Ornithology (EIAR Volume 2)**.

8.2.5 The scope of the assessment has been informed by consultation responses summarised in **Table 8.1** and the following guidelines/policies:

#### Legislation

- EC Directive on the Conservation of Natural Habitats and Wild Flora and Fauna, 92/43/EEC 1992<sup>3</sup>;
- Conservation of Habitats and Species (Amendment) (EU Exit) Regulation 2019<sup>4</sup>;
- The Conservation of Habitats and Species Regulations 2017<sup>5</sup>;
- Conservation (Natural Habitats Etc.) Regulations 1994<sup>6</sup>;
- Wildlife and Countryside Act 1981<sup>7</sup>;
- Nature Conservation (Scotland) Act 2004<sup>8</sup>;
- Wildlife and Natural Environment (Scotland) Act 2011<sup>9</sup>;
- UK Post-2010 Biodiversity Framework 2012<sup>10</sup>;
- Electricity Act 1989<sup>11</sup>;
- The Electricity Works (Environmental Impact Assessment) (Scotland) Act 2017<sup>12</sup>; and
- The Ramsar Convention on Wetlands 1971<sup>13</sup>.

#### Planning Policy

- Scottish Planning Policy 2014<sup>14</sup>;
- UK Biodiversity Action Plan (BAP) 2010<sup>15</sup>;
- Scottish Biodiversity List (SBL) 2005<sup>16</sup>;
- 2020 Challenge 2013<sup>17</sup>;
- Western Isles Local BAP<sup>18</sup>; and

<sup>2</sup> CIEEM, (2018), *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Version 1.1. URL: <https://cieem.net/wp-content/uploads/2018/08/EClA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.1.pdf> [2nd August 2022].

<sup>3</sup> EC Directive on the Conservation of Natural Habitats and Wild Flora and Fauna (1992), URL: [http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index\\_en.htm](http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm) [2nd August 2022].

<sup>4</sup> The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations (2019), URL: [https://www.legislation.gov.uk/ukdsi/2019/9780111176573#:~:text=%20The%20Conservation%20of%20Habitats%20and%20Species%20\(Amendment\),of%20capturing%20or%20killing%20fish%20are%E2%80%94%20More](https://www.legislation.gov.uk/ukdsi/2019/9780111176573#:~:text=%20The%20Conservation%20of%20Habitats%20and%20Species%20(Amendment),of%20capturing%20or%20killing%20fish%20are%E2%80%94%20More) [2nd August 2022].

<sup>5</sup> The Conservation of Habitats and Species Regulations (2017), URL: <https://www.legislation.gov.uk/ukdsi/2017/1012/contents/made> [2nd August 2022].

<sup>6</sup> The Conservation (Natural Habitats Etc.) Regulations (as amended) (1994), URL: <http://www.legislation.gov.uk/ukdsi/1994/2716/contents/made> [2nd August 2022].

<sup>7</sup> The Wildlife and Countryside Act (as amended) (1981), URL: <http://www.legislation.gov.uk/ukpga/1981/69> [2nd August 2022].

<sup>8</sup> Nature Conservation (Scotland) Act (as amended) (2004), URL: <http://www.legislation.gov.uk/asp/2004/6/contents> [2nd August 2022].

<sup>9</sup> Wildlife and Natural Environment (Scotland) Act (2011), URL: <http://www.legislation.gov.uk/asp/2011/6/enacted> [2nd August 2022].

<sup>10</sup> UK Post-2010 Biodiversity Framework (2012), URL: <http://jncc.defra.gov.uk/page-6189> [2nd August 2022].

<sup>11</sup> Electricity Act (1989), URL: <https://www.legislation.gov.uk/ukpga/1989/29/contents> [2nd August 2022].

<sup>12</sup> The Electricity Works (Environmental Impact Assessment) (Scotland) Act (2017), URL: <http://www.legislation.gov.uk/ssi/2017/101/contents/made> [2nd August 2022].

<sup>13</sup> Ramsar Convention on Wetlands (1971), URL: <http://www.ramsar.org/about-the-ramsar-convention> [2nd August 2022].

<sup>14</sup> Scottish Planning Policy (2014), URL: <https://www.gov.scot/publications/scottish-planning-policy/pages/2/> [2nd August 2022].

<sup>15</sup> UK BAP (2010), URL: <http://jncc.defra.gov.uk/default.aspx?page=5155> [2nd August 2022].

<sup>16</sup> The Scottish Biodiversity List (2005), URL: <https://www.nature.scot/scottish-biodiversity-list-documents> [2nd August 2022].

<sup>17</sup> The 2020 Challenge (2013), URL: <http://www.gov.scot/Publications/2013/06/5538> [2nd August 2022].

<sup>18</sup> Local Action Plans (2005), URL: <https://www.cne-siar.gov.uk/planning-and-building/conservation/biodiversity/planning-process/> [2nd August 2022].

- the Outer Hebrides Local Development Plan (LDP)<sup>19</sup>.

#### *Guidance*

- 8.2.6 Best practice guidance has been recognised when undertaking field surveys and is detailed in **Technical Appendix 8.1: Ecology Methodology and Results (EIAR Volume 4)**.

#### **Extent of the Study Area**

- 8.2.7 As detailed in **Technical Appendix 8.1: Ecology Methodology and Results (EIAR Volume 4)**, the Ecology Study Area comprises a desk Study Area of a 10 km buffer around the Proposed Development and a field Survey Area of 250 m on either side of the Proposed Development, as shown on **Figure 8.1: Ecology Constraints (EIAR Volume 3a)** and **Figure 8.2: Phase 1 Habitats (EIAR Volume 3a)**.

#### **Consultation Undertaken to Date**

- 8.2.8 Consultation undertaken to date mainly pertains to the EIA Scoping Report. Scoping responses received at the time of writing that are relevant to this chapter are captured in **Table 8.1**. Further information can be found in **Technical Appendix 4.3: Scoping Consultation Register (EIAR Volume 4)**.

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<sup>19</sup> Outer Hebrides LDP (2017), URL: <https://www.cne-siar.gov.uk/have-your-say/consultations/2017/outer-hebrides-local-development-plan/#:-:text=The%20Proposed%20Outer%20Hebrides%20Local%20Development%20Plan%202,role%20to%20play%20in%20the%20delivery%20of%20this>. [2nd August 2022].

<b>Table 8.1: Scoping Responses and Other Consultation of Relevance</b>			
<b>Organisation</b>	<b>Type of Consultation</b>	<b>Organisation Response</b>	<b>How Response has been Considered by the Applicant</b>
Comhairle nan Eilean Siar (CnES)	EIA Scoping Report 6 <sup>th</sup> July 2022	The route of the proposal crosses through the Lewis Peatlands SAC and Ramsar site. Subject to the detailed input of NatureScot (NS), the scope of the EIAR, as proposed, is considered to be sufficient to assess the likely significant effects on the environment and biodiversity.	The Proposed Development crosses through the Lewis Peatlands Ramsar site only, not the SAC. Consultation with NS agrees that impacts on the SAC are unlikely. Potential impacts on the Ramsar site are considered in section 8.8.
		Policy NBH2 states that Development which is likely to have a significant effect on a Natura site and is not directly connected with or necessary to the conservation management of that site will be subject to an Appropriate Assessment by the Comhairle.	No likely significant effects are predicted on a Natura site, therefore an Appropriate Assessment is not required.
		Where there is good reason to suggest that a European Protected Species (EPS) is present on-site, or may be affected by a proposed development, the Comhairle will require any such presence to be established and, if necessary, a mitigation plan provided to avoid or minimise any adverse impacts on the species, prior to determining the application.	No field signs of EPS were recorded on the Site during field surveys, though habitats were considered to be suitable for otter. Otter have been scoped out of the assessment, as detailed in Table 8.2. However, the Applicant's general Species Protection Plans (SPPs), including otter, would form part of the Construction Environmental Management Plan (CEMP) and are provided in <b>Technical Appendix 2.3: SPPs (EIAR Volume 4)</b> .
		Development should be designed to minimise adverse impacts on soils caused by ground disturbance, compaction or excavation. Developers should assess the likely effects associated with any development work on soils, particularly machair soil, peat, or other carbon-rich soils and associated vegetation, and aim to mitigate any adverse impacts arising. It is recognised that while a significant quantity of peat is proposed to be excavated, the proposal intends to limit the scope for significant adverse effects through reuse and site restoration and that a Peat Landslide Hazard Risk Assessment (PLHRA) will be carried out and a Peat Management Plan (PMP) will be required be provided should any deemed	Impacts on soils, including a PLHRA and a PMP are detailed in <b>Chapter 10: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)</b> . A CEMP will be developed by the Principal Contractor(s), and the implementation of the CEMP would be managed on-site by a suitably qualified and experienced Environmental Clerk of Works (EnvCoW),...



**Table 8.1: Scoping Responses and Other Consultation of Relevance**

		<p>planning consent be given. Provision of a CEMP and appointment of an (ECoW) will also be a requirement from the start of the construction phase and throughout the project to manage storage and reinstatement of soil and peat.</p>	
		<p>In order to minimise any adverse impacts on amenity, biodiversity or landscape value, developers will be required to incorporate existing trees and woodland into developments through sensitive siting and design. Where loss is unavoidable, appropriate replacement planting should be sought through the use of planning conditions or through a legal agreement if appropriate. The EIA should provide appropriate information to aid assessment of this matter. It is noted that a key part of the Developer’s Sustainability Strategy is to achieve Biodiversity Net Gain (BNG) as part of project delivery. As such, the ambition is to ensure that activities not only maintain the balance that exists but enhance the biodiversity in the area. To address compensatory planting in accordance with the Scottish Government’s Control of Woodland Removal Policy (CoWRP)<sup>20</sup> it is recommended that to encourage biodiversity and mitigate against the loss of forestry that native species are planted and that a Habitat Management Plan is provided to facilitate this purpose.</p>	<p>The layout of the Proposed Development has, as far as possible, been designed to avoid the habitats of highest ecological importance and with the highest sensitivity to impacts, as detailed in <b>Chapter 2: Description of Proposed Development</b> and <b>Chapter 3: Consideration of Alternatives (EIAR Volume 2)</b>. A plan detailing felling requirements is provided in <b>Figure 2.2: Land Take and Forestry Removal (EIAR Volume 3a)</b>. A habitat management plan, with details of compensatory native planting, is provided in <b>Technical Appendix 8.2: OHMP (EIAR Volume 4)</b>.</p>
		<p>The proposal should demonstrate no significant effects both during construction and after completion on the water quality in groundwater, adjacent watercourses or areas downstream; existing groundwater abstractions within 250 m; and water quality and natural flow patterns and sediment transport processes in all water bodies.</p>	<p>Effects on water quality and flow patterns is detailed in <b>Chapter 10: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)</b>.</p>
NS	EIA Scoping Report <sup>1</sup> 13 <sup>th</sup> June 2022	<p>It is NS’s view that the proposed works are not likely to have a significant effect on the qualifying features of the Lewis Peatlands SAC. Our reasons for this advice are:</p>	<p>The EclA assessment concludes that the Proposed Development would not have a significant effect on the Lewis Peatlands SAC, as detailed in section 8.8 and in</p>

<sup>20</sup> The Scottish Government’s Policy on Control of Woodland Removal (2009), URL: <https://forestry.gov.scot/publications/285-the-scottish-government-s-policy-on-control-of-woodland-removal/viewdocument/285> [3rd August 2022].

<b>Table 8.1: Scoping Responses and Other Consultation of Relevance</b>			
		<ul style="list-style-type: none"> <li>the distance between the proposed works and the habitat features of the Site;</li> <li>weak hydrological connections between the Site and the habitat features of the Site; and</li> <li>Low risk of impacts on the other qualifying feature of the SAC once standard mitigation techniques are applied.</li> </ul>	<b>Technical Appendix 8.1: Ecology Methodology and Results (EIAR Volume 4).</b>
		The proposals for protected species surveys, impact assessment and mitigation are appropriate.	No response required.
		NS recommends that all peatland habitats within the survey corridor should be mapped to NVC standards. This is because the NVC is more sensitive to the hydrological variation which occurs in blanket bog than is Phase 1, and this will be important in determining construction methods and mitigation measures.	All sensitive wetland and peatland habitats were mapped to NVC level. The full methodology and results of habitat surveys are provided in <b>Technical Appendix 8.1: Ecology Methodology and Results (EIAR Volume 4)</b> and summarised in section 8.5.
Scottish Environment Protection Agency (SEPA)	EIA Scoping Report 17 <sup>th</sup> June 2022	<p>We consider that the following key issues must be addressed in the EIA process:</p> <ul style="list-style-type: none"> <li>minimising impacts on peat and peatland;</li> <li>avoiding good quality or rare GWDTE habitats and minimising impacts on other GWDTE habitats; and</li> <li>avoiding impacts on watercourses and other water features by ensuring suitable buffers and using best practice design crossings.</li> </ul>	<p>The avoidance of high-quality habitats, such as peatland and GWDTEs, has been considered throughout the design process and these areas have been avoided, where possible. The full results of habitat surveys are provided in <b>Technical Appendix 8.1: Ecology Methodology and Results (EIAR Volume 4)</b> and summarised in section 8.5. Details of peat-probing surveys are provided in <b>Chapter 10: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)</b>.</p> <p>While the Proposed Development crosses a number of watercourses, the design has aimed to locate poles further than 30 m from watercourses, where possible. The design and assessment of watercourse crossings is provided in <b>Technical Appendix 10.4: Watercourse Crossing Assessment (EIAR Volume 4)</b>. General mitigation measures to protect watercourses would be included within the CEMP and the Applicant's General Environmental Management Plans (GEMPs) (<b>Technical Appendix 2.3, EIAR Volume 4</b>). Pollution control measures would be in place to protect ecological features and control the flow of</p>

<b>Table 8.1: Scoping Responses and Other Consultation of Relevance</b>			
			any run-off from construction or operational activities, as described in section 8.9.
		<p>GWDTE are protected under the Water Framework Directive and therefore the layout and design of the development must avoid impact on such areas. The following information must be included in the submission:</p> <ul style="list-style-type: none"> <li>a map demonstrating that all GWDTE are outwith a 100 m radius of all excavations shallower than 1 m and outwith 250 m of all excavations deeper than 1 m and proposed groundwater abstractions. If micro-siting is to be considered as a mitigation measure, the distance of survey needs to be extended by the proposed maximum extent of micro-siting. The survey needs to extend beyond the site boundary where the distances require it; and</li> <li>if the minimum buffers above cannot be achieved, a detailed site-specific qualitative and/or quantitative risk assessment will be required. We are likely to seek conditions securing appropriate mitigation for all GWDTE affected.</li> </ul>	<p>A GWDTE figure is included to show the potential GWDTE present on the Site (<b>Figure 8.4: GWDTEs, EIAR Volume 3a</b>). Impacts on GWDTE are assessed in section 8.8 and in <b>Chapter 10: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)</b>. Mitigation measures are provided in section 8.9.</p>
Marine Scotland Science (MSS)	EIA Scoping Report 11 <sup>th</sup> July 2022	<p>The EIA must assess the direct and indirect significant effects of the proposed development on water and biodiversity, and in particular species (such as Atlantic salmon <i>Salmo salar</i>) and habitats protected under the EU Habitats Directive. Salmon and trout are listed as priority species of high conservation interest in the SBL and support valuable recreational fisheries. Developers should specifically discuss and assess potential impacts and appropriate mitigation measures associated with the following:</p> <ul style="list-style-type: none"> <li>any designated area, for which fish is a qualifying feature, within and/or downstream of the proposed development area;</li> <li>the presence of a large density of watercourses;</li> <li>the presence of large areas of deep peat deposits;</li> </ul>	<p>While the Proposed Development crosses a number of watercourses, the design has aimed to locate poles further than 30 m from watercourses, where possible. The design and assessment of watercourse crossings is provided in <b>Technical Appendix 10.4: Watercourse Crossing Assessment (EIAR Volume 4)</b>. General mitigation measures to protect watercourses would be included within the CEMP and the Applicant's GEMPs (<b>Technical Appendix 2.2, EIAR Volume 4</b>), on the assumption of the presence of important ecological features (including fish and freshwater pearl mussel <i>Margaritifera margaritifera</i>) to avoid significant effects. Pollution control measures would be in place to protect watercourses and control the flow of any run-off from construction or operational activities, as described in <b>Table 8.2</b>.</p>

**Table 8.1: Scoping Responses and Other Consultation of Relevance**

		<ul style="list-style-type: none"> <li>known acidification problems and/or other existing pressures on fish populations in the area; and</li> <li>proposed felling operations.</li> </ul>	
		<p>MSS recommends that regular visual inspections are carried out by the appointed ECoW on all watercourses, paying particular attention to watercourses during and after periods of prolonged precipitation, during the fish migration/spawning period and on watercourses which are downstream of watercourse crossings, where construction is carried out and where vehicular traffic is frequenting. All observations should be carefully recorded and monthly reports submitted to the Planning Authority. An action plan should be established which outlines proposed remediation procedures, should any changes occur. The Applicant should consider a water quality and/or fish population monitoring programme particularly if the Proposed Development is in a sensitive location e.g. includes a designated area for which fish are a qualifying feature.</p>	<p>An ECoW would undertake visual inspections of watercourses as and when required during construction, and submit reports to the Planning Authority, where relevant, though monthly reporting is unlikely to be required due to the protective 30 m watercourse buffer and the small number of watercourse crossings proposed, as detailed in <b>Technical Appendix 10.4: Watercourse Crossing Assessment (EIAR Volume 4)</b>. It is not considered that a water quality and/or fish population monitoring programme is required as the Proposed Development is not in a sensitive location, such as within a designated site for fish species. However, water quality monitoring of the Allt Baca Ghail, which would be crossed by the Proposed Development, would be undertaken prior to construction to establish a baseline.</p>
Scottish Forestry (SF)	EIA Scoping Report 12 <sup>th</sup> June 2022	<p>As the Proposed Development includes woodland, SF recommends that all impacts on woodland are set out in one section of the EIAR. Any woodland removal for development purposes will be subject to Scottish Governments' CoWRP<sup>21</sup>. This policy seeks to avoid the removal of woodland, but where permanent removal is essential for development purposes the area must be replaced elsewhere by compensatory planting. The EIAR should set out how this policy has been applied and quantify any permanent woodland removal. Any proposed compensatory planting areas will be the subject of the Forestry (Environmental Impact Assessment) (Scotland) Regulations 2017<sup>22</sup>, and therefore a separate application will be required to be submitted to SF for a formal opinion on whether consent is required.</p>	<p>A small proportion of habitat loss would occur in woodland, as detailed in section 8.8. Mitigation measures includes compensatory native tree planting to enhance existing woodland areas, as detailed in <b>Technical Appendix 8.2: OHMP (EIAR Volume 4)</b>.</p>

<sup>21</sup> The Scottish Government's Policy on Control of Woodland Removal (2009), URL: <https://forestry.gov.scot/publications/285-the-scottish-government-s-policy-on-control-of-woodland-removal/viewdocument/285> [3rd August 2022].

<sup>22</sup> Forestry (Environmental Impact Assessment) (Scotland) Regulations (2017), URL: <https://www.legislation.gov.uk/ssi/2017/113/made> [3rd August 2022].

<b>Table 8.1: Scoping Responses and Other Consultation of Relevance</b>			
		Any additional felling which is not part of the planning application will require permission from SF under the Forestry and Land Management (Scotland) Act 2018 <sup>23</sup> . For areas covered by an approved Long Term Forest Plan (LTFP), the request for additional felling (and subsequent restocking) areas needs to be presented in form of LTFP amendment.	Additional felling undertaken outwith the operational corridor would be required for forestry management and is detailed in <b>Chapter 2: Description of Proposed Development (EIAR Volume 2)</b> .
		All proposed compensatory planting, felling and restocking proposals need to be compliant with requirements of UK Forestry Standard (UKFS) <sup>24</sup> .	Requirements for compensatory native tree planting are compliant with the UKFS and are detailed in <b>Technical Appendix 8.2: OHMP (EIAR Volume 4)</b> .

<sup>23</sup> Land Management (Scotland) Act (2018), URL: <https://www.legislation.gov.uk/asp/2018/8/enacted> [3rd August 2022].

<sup>24</sup> UKFS (2017), URL: <https://forestry.gov.scot/sustainable-forestry/ukfs-scotland> [3rd August 2022].

## Effects Scoped Out

8.2.9 CIEEM EcIA Guidelines<sup>25</sup> state that the assessment process does not require consideration of effects on ecological features deemed to be below a predefined nature conservation value threshold. Therefore, an assessment of the effects upon features less than local importance have been excluded from further assessment (Table 8.2)<sup>26</sup>.

<b>Feature/Effect</b>	<b>Justification</b>
Lighting, noise, dust and visual disturbance	It is considered that all ecological features identified within the EIAR could be affected by inappropriate lighting, noise, dust and visual disturbance caused by construction activities, however it is considered reasonable to expect that these potential effects are managed through best practice construction methods and guidance. In addition, a CEMP would be produced, which would capture all mitigation measures required in respect of ecological features, both as a result of the outcome of the EcIA and in order to comply with relevant legislation. The implementation and audit of these measures would be overseen by an ECoW. With the adherence to a CEMP, as overseen by an ECoW, it is not considered that there is potential for significant effects, therefore no further assessment is required.
Scrub	Scrub habitats within the field Survey Area are species-poor and occur as small scattered areas in one location. Whilst adding a diverse structure to the other habitats, they are not included under legislative or conservation lists as a priority habitat type. As a result, they are considered to be of local importance and are not considered further in this assessment.
Acid and neutral grassland	Upland acid grassland and neutral grassland are not included under legislative or conservation lists as a priority habitat type, and similar habitat is available for protected or priority species in the Ecology Study Area.
Wet and dry heath/acid grassland mosaics	Heath/acid grassland mosaics are not included under legislative or conservation lists as a priority habitat type and contain limited peat-forming vegetation compared to other peatland habitats. As a result, they are considered to be of local importance and are not considered further in this assessment.
Coniferous woodland plantation and semi-natural coniferous woodland	All stands of coniferous woodland plantation were notably uniform, with limited associated ground flora. The single area of semi-natural coniferous woodland occurs around a residential property and would not be directly impacted by the Proposed Development. Coniferous woodland is not included under legislative or conservation lists as a priority habitat type and offers limited support for ecological features. As a result, it is not considered further.
Invasive species	The mitigation measures required to avoid the spread of invasive species would be included within the CEMP. It is therefore considered that no significant effects would occur from the spread of wall cotoneaster <i>Cotoneaster horizontalis</i> , rhododendron <i>Rhododendron ponticum</i> and giant-rhubarb <i>Gunnera tinctoria</i> as a result of the Proposed Development and these features are scoped out of further assessment.
Aquatic ecology	Although the Proposed Development crosses many watercourses, poles would typically be positioned at least 30 m from watercourses and watercourse crossings would only cross one watercourse suitable for fish species and freshwater pearl mussel (the Allt Baca Ghail). No records of freshwater pearl mussel are present in the Ecology Study Area, with only one confirmed record occurring in North Harris near Abhainn Suidhe <sup>27</sup> . On the basis that the construction work would be carried out

<sup>25</sup> CIEEM, (2018), *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Version 1.1. URL: <https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.1.pdf> [2nd August 2022].

<sup>26</sup> This does not include broadleaved woodland which, although a feature of local importance, would be permanently lost or degraded as a result of the Proposed Development. All woodland removed is subject to the Scottish Government's CoWRP and requires compensatory planting.

<sup>27</sup> Freshwater Pearl Mussel (2022), URL: [https://scotland-species.nbnatlas.org/species/NHMSYS0001702090#tab\\_mapView](https://scotland-species.nbnatlas.org/species/NHMSYS0001702090#tab_mapView) [12th September 2022].

**Table 8.2: Features/Effects Scoped out of Assessment**

	following good practice mitigation for pollution prevention <sup>2829</sup> and taking a precautionary approach by assuming the presence of sensitive aquatic ecology (primarily spawning salmonids), significant effects associated with the Proposed Development on watercourses and aquatic ecology including fish are unlikely and, therefore, this topic is scoped out of further assessment.
Otter	Otters are likely to be present and using the watercourses in and around the Proposed Development, though no field signs were recorded. However, in-water working is not anticipated and key infrastructure of the Proposed Development would be installed outside of riparian zones, where possible. Construction would follow best practice methods including the adherence to Guidelines for Pollution Prevention (GPP) <sup>30</sup> ; thus pollution of watercourses is not anticipated. A pre-construction survey would be undertaken for otter to identify resting sites prior to construction. This would allow micro-siting of the design and would also inform licensing requirements if resting sites cannot be avoided. It is therefore not anticipated that there could be significant effects to otter and this feature is scoped out of further assessment.
Reptiles and amphibians (slow worm <i>Anguis fragilis</i> )	All amphibians are introduced species to Lewis and Harris and do not occur naturally <sup>31</sup> . As a result, this species group is not considered further. Slow worm is the only native reptile species on Lewis and Harris <sup>32</sup> and are likely to be present in open moorland and rough grassland. They may be negatively affected by vegetation clearance works associated with the Proposed Development. However, the impacts are considered to be small in scale relative to the extensive habitat that would still remain available for these species. Pre-construction surveys would confirm the presence of sensitive features used for shelter and hibernation and would inform micro-siting of the design. Where this is not possible, surveys would inform non-licensed precautionary methods of working under the supervision of the ECoW. As a result, this species group is not considered further.
Terrestrial invertebrates	Surveys of this species group were considered unnecessary as the EclA adopts a precautionary approach and includes appropriate mitigation, where required, to avoid significant effects.
Decommissioning	The effects associated with the construction phase can be considered representative of worst-case decommissioning effects, and therefore, no separate assessment is proposed as part of this EclA.

### 8.3 Method of Baseline Data Collection

8.3.1 The methodologies for the desk study and field surveys are described in **Technical Appendix 8.1: Ecology Methodology and Results (EIAR Volume 4)**. All field surveys were undertaken by a team of ecologists competent in ecological surveying who hold current or were accompanied by ecologists who hold current CIEEM membership and sufficient experience of surveying.

#### Limitations and Assumptions

8.3.2 It should be noted that the availability and quality of the data obtained during desk studies is reliant on third party responses and recorders. This varies from region to region and for different species groups. Furthermore, the

<sup>28</sup> Prevention of Pollution from Civil Engineering Contracts: Guidelines for the Special Requirements (2006), URL:

[https://www.sepa.org.uk/media/152220/wat\\_sg\\_31.pdf](https://www.sepa.org.uk/media/152220/wat_sg_31.pdf) [10th August 2022].

<sup>29</sup> Prevention of Pollution from Civil Engineering Contracts: Special Requirements (2006), URL: [https://www.sepa.org.uk/media/152233/wat\\_sg\\_32.pdf](https://www.sepa.org.uk/media/152233/wat_sg_32.pdf) [10th August 2022].

<sup>30</sup> GPPs (2022), URL: <https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/guidance-for-pollution-prevention-gpps-full-list/> [10<sup>th</sup> August 2022].

<sup>31</sup> Outer Hebrides Fauna (2022), URL: <https://hebf fauna.myspecies.info/vertebrates/amphibia-amphibians> [4th August 2022].

<sup>32</sup> Protected Species Advice for Developers: Reptiles (2022), URL: <https://www.nature.scot/sites/default/files/2018-04/Guidance-Reptiles-Protected-species-advice-for-planners-adders-slow-worm-and-common-lizard.pdf#:~:text=Slow%20worm%20is%20the%20only%20species%20found%20in,each%20species%20see%20the%20National%20Biodiversity%20Network%20Atlas> [4th August 2022].

comprehensiveness of data often depends on the level of coverage, the expertise and experience of the recorder and the submission of records to the local recorder. However, this is not considered to be a limitation on the desk study data assessed as this was updated with field surveys.

- 8.3.3 The habitat and faunal surveys provide a snapshot of ecological conditions and do not record plants or animals that may be present in the field Survey Area at different times of the year. The absence of a particular species cannot be confirmed by a lack of field signs and only concludes that an indication of its presence was not located during the survey effort. However, most surveys were undertaken in October 2021, which is within the optimal season of April to October for surveying most habitats and species, therefore the data collected is considered to be an accurate representation of the habitats and species that are present in the field Survey Area. The habitat and protected species survey in Aline Woodland was completed in February 2022 but this is not considered to be a limitation on the results given the area was dominated by coniferous woodland plantation.

## 8.4 Method of Assessment

### Criteria for Evaluating the Importance of Ecological Features

- 8.4.1 Habitats and species (i.e. ecological features) identified within the field Survey Area have been assigned ecological values using the standard CIEEM scale that classifies ecological features within a defined geographic context<sup>33</sup>. The classification uses recognised and published criteria<sup>34,35</sup>, where the ecological features are assessed in relation to their size, diversity, naturalness, rarity, fragility, typicalness, connectivity with surroundings, intrinsic value, recorded history and potential value. **Table 8.3** describes the geographic frame of reference that has been used.

Importance	Example
International	Internationally designated sites including SACs, Ramsar sites, Biogenetic Reserves, World Heritage sites, Biosphere Reserves, candidate SACs and potential Ramsar sites; discrete areas which meet the published selection criteria for international designation but which are not themselves designated as such; or a viable area of a habitat type listed in Annex I of the Habitats Directive <sup>36</sup> , or smaller areas which are essential to maintain the viability of a larger whole.  Resident or regularly occurring populations of species which may be considered at an international level, such as EPS, the loss of which would adversely affect the conservation status or distribution of the species at an international level; or where the population forms a critical part of a wider population; or the species is at a critical phase of its life cycle.
National	Nationally designated sites including Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Marine Nature Reserves; discrete areas which meet the published selection criteria for national designation but which are not designated as such; or areas of a habitat type identified in the UK Post-2010 Biodiversity Framework <sup>37</sup> .  Resident or regularly occurring populations of species which may be considered at the national level, such as species listed in Schedules 5 and 8 of the Wildlife and Countryside Act <sup>38</sup> , the loss of which would adversely affect the conservation status or distribution of the species across Britain or Scotland; or where the

<sup>33</sup> CIEEM, (2018), *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Version 1.1. URL: <https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.1.pdf> [2nd August 2022].

<sup>34</sup> Ratcliffe, D., (1977), *A Nature Conservation Review*. Cambridge: Cambridge University Press.

<sup>35</sup> Wray, S., Wells, D., Long, E. and Mitchell-Jones, T., (2010), *Valuing Bats in Ecological Impact Assessment*. In Practice. December 2010 pp23-25. Winchester: CIEEM.

<sup>36</sup> EC Directive on the Conservation of Natural Habitats and Wild Flora and Fauna (1992), URL:

[http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index\\_en.htm](http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm) [2nd August 2022].

<sup>37</sup> UK Post-2010 Biodiversity Framework (2012), URL: <http://jncc.defra.gov.uk/page-6189> [2nd August 2022].

<sup>38</sup> The Wildlife and Countryside Act (as amended) (1981), URL: <http://www.legislation.gov.uk/ukpga/1981/69> [2nd August 2022].



**Table 8.3: Geographic Conservation Importance**

	population forms a critical part of a wider population; or the species is at a critical phase of its life cycle.
Regional	<p>Areas of a habitat type identified in the Regional BAP; viable areas of habitat identified as being of Regional value in the appropriate Natural Heritage Zone(s)<sup>39</sup> (or equivalent); or smaller areas of such habitat which are essential to maintain the viability of a larger whole.</p> <p>Resident or regularly occurring populations of species which may be considered at an international level, or at the national level, the loss of which would adversely affect the conservation status or distribution of the species across the region; or where the population forms a critical part of a wider population; or the species is at a critical phase of its life cycle.</p>
County	<p>Designated nature conservation sites at the local authority level in Scotland including statutory Local Nature Reserves (LNR) and non-statutory Local Nature Conservation Sites; or discrete areas which meet the published selection criteria for designation but which are not designated as such.</p> <p>Resident or regularly occurring populations of species which may be considered at the local authority level, the loss of which would adversely affect the conservation status or distribution of the species across the local authority area.</p>
Local	<p>Features of local value include areas of habitat or populations/communities of species considered to appreciably enrich the habitat resource within the immediate surrounding area, for example, species-rich hedgerows.</p> <p>Resident or regularly occurring populations of species which may be considered at an international level, or at the national level, the loss of which would adversely affect the conservation status or distribution of the species across the immediate surrounding area; or where the population forms a critical part of a wider population; or the species is at a critical phase of its life cycle.</p>

8.4.2 A wide range of sources can be used to assign importance to ecological features, including legislation and policy. In the case of designated nature conservation sites, their importance reflects the geographic context of the designation. For example, sites designated as SACs are recognised as being of importance at an international level. Ecological features not included in legislation and policy may also be assigned importance due to, for example, local rarity or decline, or provision of a functional role for other ecological features. Professional judgement is used to assign such importance.

### Characterising Impacts

8.4.3 The potential impacts upon ecological features have been considered in relation to the Proposed Development. The impacts have been assessed without consideration of any specific mitigation measures that will be employed. The assessment of likely ecological impacts has been made in relation to the baseline conditions of the Ecology Study Area. The likely impacts of development activities upon ecological features have been characterised according to several variables detailed in **Table 8.4**.

**Table 8.4: Impact Characterisation**

Parameter	Description
Direction	Impacts are either adverse (negative) or beneficial (positive).
Magnitude	This is defined as high, medium, low or negligible, with these being classified using the following criteria:

<sup>39</sup> The region here is taken to be Natural Heritage Zone 3. URL: <https://www.nature.scot/sites/default/files/2017-06/B464892%20-%20National%20Assessment%20of%20Scotland%27s%20landscapes%20%28from%20NHF%29.pdf> [2nd August 2022].

**Table 8.4: Impact Characterisation**

	<ul style="list-style-type: none"> <li>• high: total/near total loss of a population due to mortality or displacement or major reduction in the status or productivity of a population due to mortality or displacement or disturbance. Total/near total loss of a habitat;</li> <li>• moderate: partial reduction in the status or productivity of a population due to mortality or displacement or disturbance. Partial loss of a habitat;</li> <li>• low: small but discernible reduction in the status or productivity of a population due to mortality or displacement or disturbance. Small proportion of habitat lost; and</li> <li>• negligible: very slight reduction in the status or productivity of a population due to mortality or displacement or disturbance. Reduction barely discernible, approximating to the 'no change' situation. Slight loss of habitat that is barely discernible from the habitat resource as a whole.</li> </ul>
Extent	The geographical area over which an impact occurs.
Duration	The time for which the impact is expected to last prior to recovery of the feature or replacement of the feature by similar resource (in terms of quality and / or quantity). This is expressed as a short-term, medium-term, or long-term effect relative to the ecological feature that is impacted.
Frequency	The number of times an activity occurs will influence the resulting effect (if appropriate, described as low to high and quantified, where possible).
Timing	The timing of an activity or change may result in an impact if it coincides with critical life-stages or seasons e.g. the breeding season.
Reversibility	<p>Irreversible impacts: permanent changes from which recovery is not possible within a reasonable time scale or for which there is no reasonable chance of action being taken to reverse it.</p> <p>Reversible impact: temporary changes in which spontaneous recovery is possible or for which effective mitigation (avoidance/cancellation/reduction of effect) or compensation (offset/recompense/offer benefit) is possible.</p>

8.4.4 The assessment only describes those characteristics relevant to understanding the ecological impact and determining the significance of the effect.

### Cumulative Effects

8.4.5 Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Cumulative effects are particularly important in ECIAs as many ecological features are already exposed to background levels of threat or pressure and may be close to critical thresholds, where further impacts could cause irreversible decline and significant cumulative effects. Further impacts can also make habitats and species more vulnerable or sensitive to change.

8.4.6 Developments included in the cumulative effects assessment are the following types of future development within the same ZOI<sup>40</sup>:

- proposals for which consent has been applied;
- projects that have been granted consent but have not yet been started or have been started but are not yet completed (i.e. under construction);
- proposals that have been refused permission but are subject to appeal; and
- to the extent that their details are in the public domain, proposed projects that will be implemented by a public body but for which no consent is needed from a competent authority.

<sup>40</sup> CIEEM, (2018), *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Version 1.1. URL: <https://cieem.net/wp-content/uploads/2018/08/EClA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.1.pdf> [2nd August 2022].

- 8.4.7 It may also be necessary to consider developments that are operational but whose full environmental effects are not yet known and cannot be accounted for in the baseline.
- 8.4.8 The ZOI for cumulative effects is considered to be 10 km for ecological features, primarily otter and bat species, due to the distance they are able to travel.

### Significance Criteria

- 8.4.9 Significant effects are assessed with reference to the geographical importance of the ecological feature. However, the scale of significance of an effect may not be the same as the geographic context in which the feature is considered important. For example, a significant effect on a species protected by national legislation does not necessarily equate to a significant effect on its national population.
- 8.4.10 For the purposes of EclA, apart from in exceptional circumstances, a significant effect, as defined by the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017<sup>41</sup> is only considered to be possible where the feature in question is considered to be of regional, national, or international importance. That is not to say that impacts from the Proposed Development could not result in significant effects on features of county or local importance, simply that those effects are not likely to be significant under EIA Regulations, unless the effect is likely to undermine biodiversity conservation objectives (such as local policies for no net loss) or biodiversity in general. Whether an effect at local or county importance is considered to be significant or not significant under the EIA Regulations is made clear in the impact assessment of each ecological feature.

### Requirements for Mitigation

- 8.4.11 Mitigation and/or compensation is proposed for all effects considered significant under the EIA Regulations. Where appropriate, as part of additional good practice, mitigation and/or compensation may be proposed for significant effects on features of county or local importance, or where required in relation to protected species where legislation may require actions to protect populations or individuals.

## 8.5 Baseline Conditions

### Current Baseline

#### *Desk Study*

#### Statutory Designated Nature Conservation Sites

- 8.5.1 One statutory designated nature conservation site for ecological features occurs within the field Survey Area, as shown on **Figure 8.1: Ecology Constraints (EIAR Volume 3a)**. The Lewis Peatlands Ramsar site is crossed by the Proposed Development to the north of Laxay. The Lewis Peatlands Ramsar site is one of the largest and most intact areas of blanket bog in the world. However, the Ramsar habitat features are found wholly within the boundary of the Lewis Peatlands SAC<sup>42</sup>, which is not crossed by, or considered to have connectivity with, the Proposed Development, as detailed in Table 8.1.2 in **Technical Appendix 8.1: Ecology Methodology and Results (EIAR Volume 4)**. As a result, the Ramsar site habitat features are not considered further in this assessment. The area of the Ramsar site crossed by the Proposed Development coincides with the Lewis Peatlands Special Protection Area (SPA) designated for bird features only<sup>43</sup>. Potential impacts and effects on bird features are considered in **Chapter 9: Ornithology (EIAR Volume 2)**.
- 8.5.2 Eight other statutory designated nature conservation sites occur within 10 km of the Proposed Development but are not considered to have potential connectivity, as detailed in **Technical Appendix 8.1: Ecology Methodology and Results (EIAR Volume 4)**. As a result, they are not considered further in this assessment.

<sup>41</sup> The Electricity Works (Environmental Impact Assessment) (Scotland) Act (2017), URL: <http://www.legislation.gov.uk/ssi/2017/101/contents/made> [2nd August 2022].

<sup>42</sup> Lewis Peatlands Ramsar (2022), URL: <https://sitelink.nature.scot/site/8432> [9th August 2022].

<sup>43</sup> *Ibid.*

### Non-statutory Designated Nature Conservation Sites

- 8.5.3 There are no non-statutory designations identified with potential connectivity to the Proposed Development, including ancient woodland or woodland on the semi-natural woodland inventory<sup>44</sup>, as shown on **Figure 8.1: Ecology Constraints (EIAR Volume 3a)**.

### Western Isles Local BAP

- 8.5.4 The Ecology Study Area is located in the Western Isles Local BAP area<sup>45</sup>. The BAP was produced in two phases in 2004 and 2005. The priority habitats and species present in the Western Isles and included in the BAP that are relevant to the Proposed Development based on the habitats and species recorded in the field Survey Area, are detailed in **Table 8.5**. A full list of species can be found in the local BAP<sup>46</sup>.

Habitat	Species
Coastal & floodplain grazing marsh	Otter
Lowland meadows	Pipistrelle <i>Pipistrellus</i> bats
Lowland dry acid grassland	Irish lady's tresse <i>Spiranthes romanzoffiana</i>
Lowland and upland heathland	Dwarf juniper <i>Juniperus communis</i>
Purple moor-grass <i>Molinia caerulea</i> and rush pastures	
Blanket bog	
Mesotrophic lochs and eutrophic standing waters	

### Field Surveys

- 8.5.5 Full details of the results of the field surveys undertaken for the Proposed Development are provided in **Technical Appendix 8.1: Ecology Methodology and Results (EIAR Volume 4)**. Summarised results are provided in this chapter.

### Phase 1 Habitats

- 8.5.6 The dominant habitats present in the field Survey Area are blanket bog and wet heath, as shown on **Figure 8.2: Phase 1 Habitats (EIAR Volume 3a)**. Target notes are also shown on **Figure 8.2** and are described in Table 8.1.4 in **Technical Appendix 8.1: Ecology Methodology and Results (EIAR Volume 4)**. Potentially sensitive habitats (excluding coniferous plantation woodland) recorded in the field survey area are detailed in **Table 8.6**<sup>47</sup>.

Habitat Type	Area within Field Survey Area (ha)
A1.1.1 Semi-natural Broadleaved Woodland	3.73
A1.1.2 Broadleaved Woodland Plantation	13.60
A1.3.1 Semi-natural Mixed Woodland	2.53
A1.3.2 Mixed Woodland Plantation	3.43

<sup>44</sup> Scottish Natural Heritage (now NS) (2018), *A Guide to Understanding the Ancient Woodland Inventory*. URL: <https://www.nature.scot/sites/default/files/2018-11/A%20guide%20to%20understanding%20the%20Scottish%20Ancient%20Woodland%20Inventory%20%28AWI%29.pdf> [2nd August 2022].

<sup>45</sup> Local Action Plans (2005), URL: <https://www.cne-siar.gov.uk/planning-and-building/conservation/biodiversity/planning-process/> [2nd August 2022].

<sup>46</sup> Local Action Plans (2005), URL: <https://www.cne-siar.gov.uk/planning-and-building/conservation/biodiversity/planning-process/> [2nd August 2022].

<sup>47</sup> The area within the Proposed Development footprint is considered in Section 8.8. The areas provided here are the baseline of what is present in the field Survey Area and are used to calculate the percentage loss shown in Tables 8.9 and 8.10.

**Table 8.6: Sensitive Habitat Types**

B5 Marshy Grassland	187.06
D1.1 Dry Heath – Acid	12.90
D2 Wet Heath	661.11
D5 Dry Heath/Acid Grassland Mosaic	12.10
D6 Wet Heath/Acid Grassland Mosaic	119.00
E1.6.1 Blanket Bog	1095.84
E1.7 Wet Modified Bog	280.87
<b>Total</b>	<b>2392.17</b>

8.5.7 Running water and standing water habitat is also present in the field Survey Area, including Loch Airigh Riabhach, Loch Leiniscal, Loch na Creigel Fraoich, Skeaudale River, Abhainn Sgaladail, Abhainn Bhioigadail, Abhainn Lacasaidh and numerous unnamed burns and lochans. A number of watercourse crossings occur as part of the Proposed Development and further details are provided in **Technical Appendix 10.4: Watercourse Crossing Assessment (EIAR Volume 4)**.

8.5.8 Three invasive non-native plant species on Schedule 9 of the Wildlife and Countryside Act (1981)<sup>48</sup> were recorded during field surveys:

- wall cotoneaster (Target Note 11 on **Figure 8.2a: Phase 1 Habitats (EIAR Volume 3a)**);
- rhododendron (Target Note 1, 4, 8, 9 and 10 on **Figure 8.2a, e and f: Phase 1 Habitats (EIAR Volume 3a)**);  
and
- giant-rhubarb (Target Note 6 and 7 on **Figure 8.2b: Phase 1 Habitats (EIAR Volume 3a)**).

#### *GWDTEs*

8.5.9 The habitats classified during NVC surveys are shown on **Figure 8.3: NVC (EIAR Volume 3a)**. The NVC results were used to determine the potential groundwater dependency of the habitats present in the field Survey Area. One potential high GWDTE and three potential moderate GWDTEs were recorded, as shown on **Figure 8.4: GWDTEs (EIAR Volume 3a)**. Table 8.7 provides further information on the potential GWDTEs recorded in the field Survey Area. **Technical Appendix 8.1: Ecology Methodology and Results (EIAR Volume 4)** provides full details on the species recorded per NVC community, including the full names of the communities that have been shortened here for ease.

**Table 8.7: Potential GWDTEs**

<b>NVC Community</b>	<b>Groundwater Dependency<sup>49</sup></b>	<b>Number of Locations</b>	<b>Area within Field Survey Area (ha)</b>
M21	High	5	27.93
MG10a	Moderate	7	35.70
M15c	Moderate	81	669.26
M25	Moderate	11	69.26
<b>Total</b>			<b>802.15</b>

<sup>48</sup> Schedule 9 of the Wildlife and Countryside Act (1981), URL: <https://www.legislation.gov.uk/ukpga/1981/69/schedule/9> [4th August 2022].

<sup>49</sup> Guidance on Assessing the Impacts of Wind farm Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems (2014), URL: [https://www.sepa.org.uk/media/143868/lupsgu31\\_planning\\_guidance\\_on\\_groundwater\\_abstractions.pdf](https://www.sepa.org.uk/media/143868/lupsgu31_planning_guidance_on_groundwater_abstractions.pdf) [4th August 2022].

8.5.10 Further information on the hydrological and hydrogeological sensitivity and an assessment of the groundwater dependency of the potential GWDTs is provided in **Technical Appendix 10.5: GWDTs Assessment (EIAR Volume 4)**.

*Protected Species*

8.5.11 No trees or structures with Bat Roost Potential (BRP) were recorded in the field Survey Area. The majority of woodland within the field Survey area is immature coniferous plantation that offers negligible roosting habitat for bats. The broadleaf trees around Tarbert are dominated by smaller species, such as rowan *Sorbus aucuparia* and elder *Sambucus nigra*, or immature trees, all of which were in good condition with no roost features, such as cracks or crevices. No structures, such as buildings, would be removed or damaged as part of the Proposed Development and no structures with BRP were recorded within 30 m of the Proposed Development, therefore, disturbance of any bat roosts is also unlikely to occur.

8.5.12 No protected species field signs were recorded in the field Survey Area, though the larger running water habitats, such as the Skeaudale River, are considered to be suitable to support otter.

*Other Notable Species*

8.5.13 A single incidental observation of a common frog *Rana temporaria* was recorded in the south of the Site, as shown by Target Note 12 on **Figure 8.2a: Phase 1 Habitats (EIAR Volume 3a)**.

8.5.14 No incidental observations of slow worm were recorded, though the heathland habitat was considered to be suitable for this species.

**8.6 Future Baseline**

8.6.1 The future baseline of the field Survey Area under the “do nothing” scenario is unlikely to change significantly in the absence of the Proposed Development.

8.6.2 The coniferous woodland plantation in the field Survey Area is likely to be maintained as a community woodland, which would occur regardless of whether the Proposed Development proceeds or not.

8.6.3 Upland peatland habitats are considered unlikely to change significantly in the absence of the Proposed Development. The majority are already modified by peat cutting and farming practices, which are expected to continue unchanged.

8.6.4 Therefore, the distribution of species present within the field Survey Area and the surrounding habitat is unlikely to change significantly in the future. Climate change may have an adverse effect on species distribution and this could be significant depending on the severity of the effect.

**8.7 Sensitive Ecological Features**

8.7.1 A summary of the ecological features identified as being sensitive to the potential impacts of construction and operation of the Proposed Development and that have been ‘scoped-in’ to the assessment is given in **Table 8.8**, together with the rationale for their inclusion. The features and effects that have been ‘scoped-out’ are provided in **Table 8.2**, together with the justification for their exclusion.

**Table 8.8: Summary of Important Ecological Features**

Feature	Importance	Rationale
Broadleaved and mixed woodland and scrub	Local	Woodland covers approximately 19% of Scotland, with under a quarter of these woodlands considered native <sup>50</sup> . The SBL <sup>51</sup> includes terrestrial woodland habitats, including lowland mixed deciduous woodland, wet woodland, and

<sup>50</sup> Walton, P., Eaton, M., Stanbury, A., Hayhow, D., Brand, A., Brooks, S., Collins, S., Duncan, C., Dundas, C., Foster, S., Hawley, J., Kinninmonth, A., Leatham, S., Nagy-Vizitiu, A., Whyte, A., Williams, S., and Wormald, K., (2019), *The State of Nature Scotland 2019*. The State of Nature Partnership.

<sup>51</sup> The Scottish Biodiversity List (2005), URL: <https://www.nature.scot/scottish-biodiversity-list-documents> [2nd August 2022].

**Table 8.8: Summary of Important Ecological Features**

		<p>upland birchwood, none of which occur in the field Survey Area. Native woodland cover is scarce across the wider Ecology Study Area. All broadleaved and mixed woodlands, and scrub play an important role in the ecosystem, offering shelter and foraging opportunities for a wide range of protected and notable species, including specialists and generalists. However, woodlands included in this category may range from immature to mature and have not been included on the Ancient Woodland inventory. As such, these woodlands are considered to be of local importance.</p>
<p>Peatlands (blanket bog, wet modified bog, and wet and dry heath)</p>	<p>Regional (blanket bog) County (wet modified bog, wet and dry heath)</p>	<p>These habitat types are included in Annex 1 of the EC Habitats Directive<sup>52</sup> (excluding the heath/grassland mosaics) and are sensitive to environmental change, such as changes to hydrology, carbon function, species composition and nutrient status. Much of the peatland habitat in the UK is in poor condition due to damage from anthropogenic activities such as drainage, grazing and peat extraction.</p> <p>The examples of blanket bog within the field Survey Area are of varying condition and subject to modification but do include some areas of higher floral diversity with the presence of bog pools (see Target Notes 2, 3 and 5 on <b>Figure 8.2: Phase 1 Habitats (EIAR Volume 3a)</b>). Although the blanket bog in the field Survey Area does have continuous units that are greater than 25 ha and supports peat-forming vegetation, a natural surface pattern and an absence of woodland/scrub invasion, it does not have a low frequency of drains/peat cutting and it does not support other indicators of national importance<sup>53</sup>, such as an abundance of bog-moss-rich ridges and hummocks or hollows with brown beak-sedge <i>Rhynchospora fusca</i>. This means that, overall, the peatland on the Site is not of the highest quality and any significant effects are unlikely to be of national interest. As such, this feature is considered to be of no more than regional importance.</p> <p>The wet modified bog within the field Survey Area lacks significant peat-forming vegetation and is generally poorer quality, with low species diversity and rare or absent bog-moss <i>Sphagnum sp.</i> However, this habitat has the potential to recover and return to active, peat-forming blanket bog, therefore this feature is considered to be of county importance.</p> <p>The wet and dry heath within the field Survey Area is also of varying condition, with some areas supporting peat-forming vegetation and other areas dominated by common heather <i>Calluna vulgaris</i> and deer grass <i>Trichophorum cespitosum</i>. As such, this feature is also considered to be of county importance.</p>
<p>Wetlands (potential GWDTE and marshy grassland)</p>	<p>County</p>	<p>GWDTEs are sensitive to changes in hydrology and hydrogeology and are a priority under the Water Environment</p>

<sup>52</sup> EC Directive on the Conservation of Natural Habitats and Wild Flora and Fauna (1992), URL:

[http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index\\_en.htm](http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm) [2nd August 2022].

<sup>53</sup> Advising on Carbon-rich Soils, Deep Peat and Priority Peatland Habitat in Development Management (2021), URL: <https://www.nature.scot/doc/advising-carbon-rich-soils-deep-peat-and-priority-peatland-habitat-development-management> [4th August 2022].

**Table 8.8: Summary of Important Ecological Features**

		and Water Services (Scotland) Act <sup>54</sup> . The examples of these habitat types in the field Survey Area are generally in good condition, with increased diversity, size and naturalness. As a result, this feature is considered to be of county importance.
Standing and running water	Local	Several waterbodies and watercourses, including Loch Airigh Riabhach, Loch Leiniscal, Loch na Creigel Fraoich, Skeaudale River, Abhainn Sgaladail, Abhainn Bhoigadail, Abhainn Lacasaith occur in the field Survey Area. Standing and running water provides habitat for otter, fish and invertebrates. As a result, this feature is considered to be of local importance.

## 8.8 Assessment of Effects

8.8.1 The assessment of effects in this section considers the significance of the associated effect in the absence of mitigation, excluding mitigation that has already been undertaken e.g. mitigation by design. The assessment considers the effect of the Proposed Development on the ecological features detailed in **Table 8.8**.

### Mitigation by Design

- 8.8.2 The layout of the Proposed Development has, as far as possible, been designed to avoid the habitats of highest ecological importance and with the highest sensitivity to impacts, as detailed in **Chapter 2: Description of Proposed Development** and **Chapter 3: Route Selection and Alternatives (EIAR Volume 2)**. This included active peatland habitats, potential GWDTE and semi-natural woodland. Where it has not been possible to avoid peatland habitats, infrastructure has been positioned as close to the edge of areas of those habitat types and on the shallowest peat, where possible, to reduce impacts on the natural functions of those habitats. Furthermore, where the Proposed Development occurs in areas of blanket bog, as far as possible, the locations have been selected to avoid those areas of higher quality, active and deep peat, as detailed in **Chapter 10: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)**. No permanent access tracks would be required for the Proposed Development, with existing tracks upgraded for access then low-ground-pressure vehicles used to cross open ground in the first instance, with floating tracks (bog mats) used where this is not possible, as detailed in **Chapter 2: Description of Proposed Development (EIAR Volume 2)**. The floating track design would have due regard to key principles set out in the joint Scottish Natural Heritage (SNH, now NS) and Forestry and Land Scotland (FLS) guide to floating roads on peat<sup>55</sup>. Habitats would be reinstated as soon as possible following construction of temporary infrastructure, such as pole working areas, as detailed in the phased programme in **Chapter 2: Description of Proposed Development (EIAR Volume 2)**.
- 8.8.3 Measures already taken into account during design include features that would be incorporated into access tracks, such as culverts, to minimise the potential impacts on the hydrological characteristics of peatland and wetland habitats by maintaining hydrological connectivity between sensitive habitats. Further details of hydrological mitigation to reduce the significance of potential adverse effects on the hydrology are described in **Chapter 10: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)**.
- 8.8.4 The Applicant has sought to avoid areas of woodland in the first instance, particularly by retaining areas of native woodland. Where this has not been possible, infrastructure has been micro-sited to minimise the amount of felling required. Post-construction, compensatory tree planting would occur and is detailed in **Technical Appendix 8.2: OHMP (EIAR Volume 4)**.

<sup>54</sup> Water Environment and Water Services (Scotland) Act (2003), URL: <https://www.legislation.gov.uk/asp/2003/3/contents> [4th August 2022].

<sup>55</sup> Floating Roads on Peat (2010), URL: <http://www.roadex.org/wp-content/uploads/2014/01/FCE-SNH-Floating-Roads-on-Peat-report.pdf> [8th August 2022].



## Potential Effects

### Potential Construction Effects

8.8.5 The assessment of likely effects associated with construction is based on the typical activities described in **Chapter 2: Description of Proposed Development (EIAR Volume 2)**.

#### Sensitive Habitats (Excluding GWDTEs)

8.8.6 Construction activities have the potential to degrade or destroy sensitive habitats either directly, through excavation, compaction, or modification (e.g. vegetation removal), or indirectly as a result of dewatering or from the accidental release of fuels, lubricants or other chemicals. The construction of the proposed Overhead Line (OHL) and vegetation clearance to maintain the operational corridor would cause permanent habitat loss. The construction of temporary floating access tracks and pole working areas would cause temporary habitat degradation or loss in the short- to medium-term until habitats are reinstated following completion of the Proposed Development. The significance of these effects per habitat type is considered below.

8.8.7 The construction of temporary site compounds is not considered in this assessment. Their locations are to be confirmed at a later date and the Principal Contractor would be responsible for obtaining the necessary permissions. This chapter assumes that the compounds would avoid sensitive ecological features primarily through micro-siting.

8.8.8 **Table 8.9** and **Table 8.10** set out the percentage of permanent and temporary habitat loss, respectively, by habitat type within the field Survey Area. Direct habitat loss during construction includes the permanent pole bases (3 m<sup>2</sup>), working areas for each pole (a temporary working area of approximately 625 m<sup>2</sup> (25 m x 25 m), with a total of 671 poles), the permanent 60 m operational corridor through woodland (30 m on either side of the proposed OHL), and the area of proposed temporary floating access track (with a minimum running width of 4.5 m)<sup>56</sup>. Indirect habitat modification is calculated as impacting a 15 m buffer around areas of direct woodland habitat loss<sup>57</sup> and a 10 m buffer around the areas of direct loss in other habitats as this is considered to represent the worst-case scenario of habitat that is likely to be indirectly modified by the Proposed Development. However, there would be no indirect hydrological and hydrogeological modification associated with the proposed access tracks on the basis that all tracks would be of floating construction, where possible, as detailed in paragraphs 8.8.2 and 8.8.3. Indirect permanent habitat modification around pole bases is considered to be unlikely as the area involves habitat that would already be directly lost for each pole working area. These habitats would be reinstated following construction.

**Table 8.9: Permanent Habitat Loss from Proposed Development During Construction**

		Direct Habitat Loss		Indirect Habitat Modification/Degradation	
Habitat	Total Habitat in Field Survey Area (ha)	Area Lost (ha)	Percentage Lost (%)	Area Modified (ha)	Percentage Modified
A1.1.1 Semi-natural Broadleaved Woodland	3.73	0.02	0.54	0.16	4.29
A1.1.2 Plantation Broadleaved Woodland	13.60	1.44	10.59	0.92	6.77

<sup>56</sup> As it is unknown how much floating access track would be required, a worst-case scenario of all temporary access being composed of floating track is considered for the purpose of habitat loss calculations. However, the actual length of floating track, and the subsequent temporary habitat loss, is likely to be less than forecast.

<sup>57</sup> Ancient Woodland, Ancient Trees and Veteran Trees: Advice for Making Planning Decisions (2022), UR: <https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions> [8th August 2022].

**Table 8.9: Permanent Habitat Loss from Proposed Development During Construction**

A1.3.1 Semi-natural Mixed Woodland	2.53	-	-	0.02	0.79
A1.3.2 Mixed Woodland Plantation	3.43	0.10	2.92	0.60	17.49
B5 Marshy Grassland	187.06	0.07	0.04	-	-
D1.1 Dry Heath	12.90	0.003	0.02	-	-
D2 Wet Heath	661.11	0.16	0.02	-	-
E1.6.1 Blanket Bog	1095.84	0.35	0.03	-	-
E1.7 Wet Modified Bog	280.87	0.09	0.03	-	-
<b>Totals</b>	<b>2261.07</b>	<b>0.77</b>	<b>0.03</b>	<b>1.70</b>	<b>0.08</b>

**Table 8.10: Temporary Habitat Loss from Proposed Development During Construction**

		Direct Habitat Loss		Indirect Habitat Modification/Degradation	
Habitat	Total Habitat in Field Survey Area (ha)	Area Lost (ha)	Percentage Lost (%)	Area Modified (ha)	Percentage Modified
B5 Marshy Grassland	187.06	14.93	7.98	17.16	9.17
D1.1 Dry Heath	12.90	0.79	6.12	0.87	6.74
D2 Wet Heath	661.11	36.68	5.55	36.74	5.56
E1.6.1 Blanket Bog	1095.84	77.36	7.06	80.05	7.31
E1.7 Wet Modified Bog	280.87	20.70	7.37	22.37	7.97
<b>Totals</b>	<b>2237.78</b>	<b>150.46</b>	<b>6.72</b>	<b>157.19</b>	<b>7.02</b>

8.8.9 Without consideration of mitigation, the permanent loss or degradation of broadleaved and mixed woodland (semi-natural and plantation) would comprise 3.26 ha (14%) of the total recorded in the field Survey Area. The loss of broadleaved woodland is considered to be an adverse effect at the local level because broadleaved and mixed woodland is of high ecological value and provides habitat for a range of other ecological features. As woodland is scarce in the Ecology Study Area and the Proposed Development would affect 14% of the habitat available, this effect is considered to be **significant**.

8.8.10 Temporary habitat loss is considered to be permanent in areas of woodland since this habitat cannot be immediately reinstated following construction, unlike other habitats, such as blanket bog whereby peat turves can be stored and replaced. Once woodland is felled, replacement depends on planting and long-term natural regeneration. Compensatory woodland planting is considered as part of mitigation in section 8.9. Recommendations for woodland enhancement and creation are also provided in **Technical Appendix 8.2: OHMP (EIAR Volume 4)**.

- 8.8.11 While there is also the potential to impact on habitat connectivity through fragmentation, it is noted that the existing areas of woodland are subject to a high level of fragmentation at the wider landscape level. The scale of fragmentation caused by felling (limited to a 60 m width for the operational corridor) is considered to represent a negligible permanent effect on the basis that, following reinstatement, the Proposed Development wayleave would be subject to a low level of habitat modification, with scrub vegetation providing for species movement between habitat patches, maintaining functional connectivity. This fragmentation effect is considered to be **not significant**.
- 8.8.12 Without consideration of mitigation, the permanent loss or degradation of blanket bog would comprise 0.35 ha (0.03%) of the total recorded in the field Survey Area (see **Table 8.9**). The temporary loss or degradation of blanket bog would comprise 157.41 ha (14.36%) of the total recorded in the field Survey Area (see **Table 8.10**, direct habitat loss and indirect habitat modification/degradation). As blanket bog is an Annex 1 habitat<sup>58</sup> and much of the blanket bog in Scotland is in poor condition, further loss or degradation of this feature is considered to be an adverse effect on a feature of regional importance. However, as this would be a low magnitude adverse impact that would still leave functioning habitat, with the majority being temporary loss that would be short-term and reversible, further loss or degradation, though an adverse effect, is considered to be **not significant**. Peatland restoration is considered as a good practice measure in section 8.9 and in **Technical Appendix 8.2: OHMP (EIAR Volume 4)**.
- 8.8.13 Without consideration of mitigation, the permanent loss or degradation of wet modified bog would comprise 0.09 ha (0.03%) of the total recorded in the field Survey Area (see **Table 8.9**). The temporary loss or degradation of wet modified bog would comprise 43.07 ha (15.34%) of the total recorded in the field Survey Area (see **Table 8.10**, direct habitat loss and indirect habitat modification/degradation). Although wet modified bog has the potential to return to blanket bog, the examples in the field Survey Area are species-poor and heavily grazed or modified through cutting and would likely require active restoration measures in the medium-term to return to blanket bog. As the wet modified bog in the field Survey Area is of poor quality and the potential impact occurs on a feature of county importance, further loss or degradation, though an adverse effect, is considered to be **not significant**.
- 8.8.14 Without consideration of mitigation, the permanent loss or degradation of wet heath would comprise 0.16 ha (0.02%) of the total recorded in the field Survey Area (see **Table 8.9**). The temporary loss or degradation of wet heath would comprise 73.42 ha (11.11%) of the total recorded in the field Survey Area (see **Table 8.10**, direct habitat loss and indirect habitat modification/degradation). As wet heath is an Annex 1 habitat<sup>59</sup>, loss of this feature is considered to be an adverse effect on a feature of county importance. However, as this would be a low-magnitude adverse impact that would still leave functioning habitat, with the majority being temporary loss that would be short-term and reversible, further loss or degradation, though an adverse effect, is considered to be **not significant**.
- 8.8.15 Without consideration of mitigation, the permanent loss or degradation of dry heath would comprise 0.003 ha (0.02%) of the total recorded in the field Survey Area (see **Table 8.9**). The temporary loss or degradation of dry heath would comprise 1.66 ha (12.87%) of the total recorded in the field Survey Area (see **Table 8.10**, direct habitat loss and indirect habitat modification/degradation). As dry heath is an Annex 1 habitat<sup>60</sup>, loss of this feature is considered to be an adverse effect on a feature of county importance. However, as this would be a low-magnitude adverse impact that would still leave functioning habitat, with the majority being temporary loss that would be short-term and reversible, further loss or degradation, though an adverse effect, is considered to be **not significant**.
- 8.8.16 Without consideration of mitigation, the permanent loss or degradation of marshy grassland would comprise 0.07 ha (0.04%) of the total recorded in the field Survey Area (see **Table 8.9**). The temporary loss or degradation of marshy grassland would comprise 32.09 ha (17.16%) of the total recorded in the field Survey Area (see **Table**

<sup>58</sup> EC Directive on the Conservation of Natural Habitats and Wild Flora and Fauna (1992), URL:

[http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index\\_en.htm](http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm) [2nd August 2022].

<sup>59</sup> *Ibid.*

<sup>60</sup> *Ibid.*

**8.10**, direct habitat loss and indirect habitat modification/degradation). This would be a low-magnitude adverse impact that would still leave functioning habitat, with the majority being temporary loss that would be short-term and reversible. As a result, the effect is considered to be **not significant**.

8.8.17 Due to the proximity of standing and running water to the Proposed Development, there is potential for pollution or surface water run-off to enter this habitat. Although the magnitude and duration of the impact would depend on the nature of the pollution event, based on a precautionary approach, it has been considered to result in an adverse effect on a feature of local importance but this effect is considered to be **not significant**, particularly as the effect would be localised to watercourse crossing areas, with most standing or running water habitat protected from construction activities by a 30 m buffer. Details on the number of watercourses that are within and outwith the 30 m watercourse buffer are provided in **Technical Appendix 10.4: Watercourse Crossing Assessment (EIAR Volume 4)**.

*Potential GWDTEs*

8.8.18 **Table 8.11 and 8.12** set out the percentage of permanent and temporary loss of potential GWDTEs within the field Survey Area as part of the Proposed Development, respectively. All excavations for the Proposed Development would be greater than 1 m deep. No excavations of less than 1 m deep would occur as all access tracks would be of a floating construction. Further information on the hydrological and hydrogeological sensitivity and an assessment of the groundwater dependency of the potential GWDTEs is provided in **Technical Appendix 10.5: GWDTEs Assessment (EIAR Volume 4)**.

**Table 8.11: Permanent Loss of Potential GWDTEs from Proposed Development During Construction**

		Direct Habitat Loss		Indirect Habitat Modification/Degradation	
GWDTE	Total Habitat in Field Survey Area (ha)	Area Lost (ha)	Percentage Lost (%)	Area Modified (ha)	Percentage Modified (ha)
High	27.93	0.01	0.04	-	-
Moderate	774.22	0.20	0.03	-	-
<b>Totals</b>	<b>802.15</b>	<b>0.21</b>	<b>0.03</b>	-	-

**Table 8.12: Temporary Loss of Potential GWDTEs from Proposed Development During Construction**

		Direct Habitat Loss		Indirect Habitat Modification/Degradation	
Habitat	Total Habitat in Field Survey Area (ha)	Area Lost (ha)	Percentage Lost (%)	Area Modified (ha)	Percentage Modified (ha)
High	27.93	2.32	8.31	-	-
Moderate	774.22	44.51	5.75	-	-
<b>Totals</b>	<b>802.15</b>	<b>46.83</b>	<b>5.84</b>	-	-

8.8.19 Without consideration of mitigation, the permanent loss or degradation of high GWDTEs and moderate GWDTEs would comprise 0.01 ha (0.04%) and 0.20 ha (0.03%) of the total recorded in the field Survey Area, respectively. The temporary loss or degradation of high GWDTEs and moderate GWDTEs would comprise 2.32 ha (8.31%) and 44.51 ha (5.75%) of the total recorded in the field Survey Area, respectively. In addition, 166 poles occur within 250 m of potential GWDTEs. However, it is noted that there would be no long-term hydrological and hydrogeological effects on the potential GWDTEs within 250 m of pole foundation excavations on the basis that, following construction and reinstatement, the pole foundations would be an impermeable subsurface feature and

would not create artificial preferential drainage pathways within the potential GWDTE habitat. There would be no indirect hydrological and hydrogeological modification associated with the proposed access tracks on the basis that all tracks within 100 m of potential GWDTEs would be of floating construction, where possible, as detailed in paragraphs 8.8.2 and 8.8.3. Overall, this represents a low-magnitude adverse impact that would still leave functioning habitat, with the majority being temporary loss that would be short-term and reversible. On this basis, effects on the potential GWDTEs are considered to be **not significant**.

#### *Ancillary Works*

- 8.8.20 No new permanent tracks would be formed as part of the dismantling of the existing OHL following completion of the Proposed Development. Low-ground-pressure vehicles would be used to access pole locations. Where it is not feasible to avoid soft ground, temporary floating tracks would be used to protect peatlands and wetlands. Decommissioning of the existing OHL in Aline Woodland would allow the habitat in the wayleave to recover through natural regeneration. As a result, construction effects on habitats would be temporary and short term, with a likely beneficial effect at the local level in the long term as habitats recover and vegetation is no longer cleared within the existing OHL corridor, though this effect is considered to be **not significant**. This would potentially allow the re-vegetation of scrub and woodland in the long term. However, this is subject to land owner decisions regarding land management.

#### *Potential Operational Effects*

- 8.8.21 During operation of the Proposed Development, maintenance activities would involve regular inspections to identify deterioration or damage, with the possible replacement of short sections. Typically, insulators and conductors need replaced after 40 years. The vegetation within the operational corridor would also be managed to maintain the required safety clearance. In all cases, maintenance activities would access the Proposed Development from existing access tracks. As a result, effects from maintenance activities are considered to be **not significant**.

## **8.9 Mitigation**

- 8.9.1 In the absence of mitigation, significant effects are predicted on woodland. Specific mitigation for this feature is provided below. No mitigation is required for other ecological features as there are no significant effects predicted as a result of the construction and operation of the Proposed Development. However, the Applicant would implement a suite of standard mitigation and good practice working measures that would provide additional protection. These are also summarised below and would be detailed in the CEMP.

### **Mitigation During Construction**

#### *Sensitive Felling and Compensatory Woodland Planting*

- 8.9.2 The permanent loss of broadleaved and mixed woodland as part of the Proposed Development would be minimised, where possible, by undertaking crown reduction of tree canopies instead of felling and through a phased approach to fell a minimum width for construction with selective felling during operation and maintenance. Micrositing of access tracks and poles within the 60 m Limit of Deviation (LOD) would also be undertaken, where possible, to avoid felling. The loss would also be minimised by retaining scrub/understorey layers in areas where existing tree cover doesn't breach safety clearances. In addition, the Applicant would seek to manage the operational corridor to encourage native scrub vegetation through natural regeneration and/or planting.
- 8.9.3 Further details of the compensatory woodland planting required following tree felling are provided in **Technical Appendix 2.4: Forestry Plan (EIAR Volume 4)** and **Technical Appendix 8.2: OHMP (EIAR Volume 4)**, which also includes recommendations for woodland enhancement and creation.

#### *Habitat Reinstatement*

- 8.9.4 Areas of temporary infrastructure, such as floating tracks and trident pole working areas, would be reinstated as soon as possible after construction has been completed to allow the recolonisation of natural habitats, particularly

in areas of blanket bog, wet modified bog, wet heath and dry heath, as detailed in the phased programme in **Chapter 2: Description of Proposed Development (EIAR Volume 2)**. Further details on the proposed approach to habitat reinstatement would be set out in the CEMP and the Principal Contractor would be required to provide a habitat reinstatement plan prior to the start of reinstatement works. The methodology for peatland reinstatement is also detailed in **Technical Appendix 10.2: Outline PMP (EIAR Volume 4)**.

#### *Habitat Restoration*

- 8.9.5 Active restoration of peatland habitats would be carried out in line with **Technical Appendix 8.2: OHMP (EIAR Volume 4)** and would be secured by planning condition. Active restoration is defined here as the process of actively encouraging the regeneration of degraded peatland habitats through specific management interventions. Degraded peatland habitats are those that are reduced in quality. In order to account for the predicted permanent loss of wet heath, blanket bog and wet modified bog, a minimum of 0.6 ha of peatland would be restored off-site in areas of modified bog that no longer contain a significant proportion of peat-forming vegetation. As a good practice measure, and in order to account for the area of blanket bog and wet modified bog being temporarily lost and degraded as a result of the Proposed Development, active restoration of reinstated peatland would also be carried out where possible. The overall aim would be to restore a larger area of peatland than the area lost. This would compensate for the permanent and temporary loss and modification of peatland as a result of the Proposed Development.

#### *CEMP*

- 8.9.6 The CEMP would be prepared following the determination of the application for s37 consent and would include an outline of the proposed approach to construction methods and environmental protection during all aspects of the construction phase. SPPs would form part of the CEMP. These require pre-construction protected species surveys to be undertaken (see paragraph 8.9.8 below).
- 8.9.7 A suitably qualified and experienced ECoW would be employed to input into the CEMP and oversee the implementation of surface water management and ecological mitigation measures during construction. A draft CEMP is provided in **Technical Appendix 2.2: Outline CEMP (EIAR Volume 4)**.

#### *Pre-construction Protected Species Survey*

- 8.9.8 SPPs (**Technical Appendix 2.4, EIAR Volume 4**) would be followed during construction of the Proposed Development. In implementing the SPPs, a pre-construction protected species survey would be undertaken as close to the construction period as possible, and no more than three months before the start of works<sup>61</sup>. The protected species surveys undertaken to inform the EIAR can be used to inform the pre-construction surveys. A suitably qualified ecologist would be appointed to undertake this survey.

#### *Maintaining Hydrological Connectivity*

- 8.9.9 No excavations of less than 1 m are proposed since no access tracks would be constructed as part of the Proposed Development. All excavations for pole foundations would be greater than 1 m and **Figure 8.4: GWDTE (EIAR Volume 3a)** shows the relevant 250 m buffer zone required for these excavations.
- 8.9.10 Suitable drainage and surface water measures would be used to maintain hydrological connectivity in peatland habitats, particularly blanket bog, wet modified bog, and wet heath, and in GWDTEs. This would include measures such as diverting drainage around working areas and maintaining hydrological connectivity in track upgrades by using small diameter pipes in the sub-base. A floating track construction would be used through peatlands and GWDTEs where low-ground-pressure vehicles cannot be used alone. The track design would have due regard to key principles set out in the joint SNH/FLS (previously Forestry Commission Scotland (FCS)) guide to floating roads on peat<sup>62</sup>. Where there is no clearly defined channel flow through GWDTEs, track construction

<sup>61</sup> Planning and Development: Protected Species (2022), URL: <https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/planning-and-development-protected-species> [8th August 2022].

<sup>62</sup> Floating Roads on Peat (2010), URL: <http://www.roadex.org/wp-content/uploads/2014/01/FCE-SNH-Floating-Roads-on-Peat-report.pdf> [8th August 2022].

would use a floating construction that incorporates measures such as a porous granular rock fill blanket, non-alkaline porous layer and perforated pipes to maintain the flow connectivity across tracks.

- 8.9.11 Where pole excavations are required within a 250 m buffer zone, up gradient of identified GWDTEs, the quality and quantity of the groundwater that feeds the GWDTEs downstream from the excavations would be maintained by over-pumping and dewatering of excavations discharged to ground (via suitable pollution prevention measures) in a suitable location close to the excavation.
- 8.9.12 Greenfield run-off (i.e. non-silty surface water flow that has not yet passed over any disturbed construction areas) would be kept separate from potentially contaminated water from construction areas, where possible. Where appropriate, interceptor ditches and other drainage diversion measures would be installed immediately in advance of any excavation works in order to collect and divert greenfield run-off around areas disturbed by construction activities. All surface water within disturbed areas would be managed in accordance with sustainable drainage system techniques, using a multi-tiered approach to provide both flow attenuation and treatment through infiltration, where possible, and physical filtration prior to discharge.
- 8.9.13 Ditches would follow the natural flow of the ground with a generally constant depth to ditch invert. They would have shallow longitudinal gradients, where possible. Regular check-dams would be used where necessary to control the rate of run-off. The ditches would be designed to intercept any stormwater run-off and to allow clean water flows to be transferred independently through the works without mixing with construction drainage. The regular interception and diversion of clean run-off around infrastructure would prevent significant disruption to shallow groundwater flow and peatland. This would also reduce the flow of water onto any exposed areas of rock and soil, thereby reducing the potential volume of silt-laden run-off requiring treatment.
- 8.9.14 Greenfield run-off would be discharged into an area of vegetation for dispersion or infiltration, mimicking natural flows, so as not to alter downstream hydrology or soil moisture characteristics.
- 8.9.15 Further details can be found in **Chapter 10: Hydrology, Hydrogeology and Geology and Soils (EIAR Volume 2)**.

#### *Protected Species Enhancements*

- 8.9.16 The opportunity exists to enhance the field Survey Area for slow worm, as detailed in **Technical Appendix 8.2: OHMP (EIAR Volume 4)**. The provision of artificial refugia could have a beneficial effect by providing further sheltering opportunities.

#### **Mitigation During Operation**

- 8.9.17 No significant effects are predicted and, consequently, no mitigation is required.

### **8.10 Residual Effects**

#### **Residual Construction Effects**

- 8.10.1 The majority of habitats would be reinstated following completion of the Proposed Development, resulting in an adverse effect for the short- to medium-term, approximately five to ten years, until habitats (excluding woodland) have re-established. Permanent habitat loss would occur in peatlands and potential GWDTEs due to the excavation of pole bases but this effect is considered to be of low magnitude due to the small footprint involved, and was not considered to be significant, therefore **no significant residual effects** would occur on habitats (excluding woodland).
- 8.10.2 Following completion of the Proposed Development (including reinstatement work), residual adverse effects are anticipated for the long-term (approximately ten to 20 years) until woodland has re-established. Compensatory planting areas are likely to establish and become a functional young woodland over at least 50 years. As a result, a long-term **significant adverse residual effect** would remain for the loss of woodland until such time as the replacement woodland areas are fully established and functional.

8.10.3 Implementation of the proposed CEMP would avoid likely adverse effects from pollution events on habitats.

### Residual Operational Effects

8.10.4 There would be no significant effects pre-mitigation and, consequently, no residual effects would occur.

## 8.11 Cumulative Effects

8.11.1 This section considers the potential for cumulative effects on ecological features from those proposed, applied, under construction and consented schemes closest to the field Survey Area by first describing the known conditions on each of those sites and then summarising the cumulative effect with the Proposed Development. **Table 8.13** shows the cumulative developments that could result in cumulative effects on ecological features in combination with the Proposed Development. These cumulative developments occur within 10 km and are in the same ZOI as the Proposed Development.

Table 8.13: Developments Considered in Cumulative Assessment	
Name	Distance from Proposed Development (km)
<b>Consented</b>	
Stornoway Wind Farm	0.71
Muaitheabhal Wind Farm	6.61
Muaitheabhal East Extension	9.39
Muaitheabhal South Extension	7.58
Beinn Thulabaigh Wind Turbine	4.16
<b>In Planning</b>	
Aignish Community Wind Farm	0.40

8.11.2 EIARs and other relevant environmental reports, such as survey reports, for nearby developments were consulted, and relevant details are presented below.

### Stornoway Wind Farm

8.11.3 Thirty-five turbines are proposed for Stornoway Wind Farm, which is located to the west of the Proposed Development. The cumulative development contains similar habitats to the Proposed Development, including blanket bog, though the bog present in the cumulative development is of national importance (including the presence of the rare Austin's bog-moss *Sphagnum austinii*, which is an indicator of undisturbed bog), wet and dry heath, flushes, marshy grassland and moderate and high GWDTEs, including M15, M25, M23 and M6. The development also occurs 1.07 km from Lewis Peatlands SAC. Otter activity was recorded in the form of spraints, prints and resting sites (holts and couches), with the highest activity in the Abhainn Ghrioda catchment, surrounding Loch a Chlachain, Loch Speireag and Fedan Loch Lochan. Atlantic salmon and brown trout *Salmo trutta* were recorded. Freshwater pearl mussel was not recorded, with the habitat considered to be unsuitable or suboptimal for this species.

8.11.4 The potential effects considered were disturbance of otter from Lewis Peatlands SAC, loss of blanket bog, wet heath, and marshy grassland, and pollution of watercourses. The loss of 108.2 ha (7.8%) of blanket bog and 3.7 ha (11.6%) of wet heath was considered to lead to a significant effect. Mitigation included avoiding peat deeper than 3 m, floating tracks on peat >1 m deep, pre-construction surveys for Austin's bog-moss and otter, restoration of 33 ha of blanket bog and wet heath, a 50 m buffer around watercourses, pollution prevention measures, an EPS licence to disturb otter resting sites and various measures to reduce otter disturbance, such as avoiding work and artificial lighting during the hours of darkness and speed limits on access tracks.



8.11.5 It is likely that the loss of blanket bog and wet heath habitat in combination with the non-significant losses from the Proposed Development would amount to a combined percentage of peatland habitat loss and this effect is considered to be **significant**.

#### Muaitheabhal Wind Farm

8.11.6 Thirty-three turbines are proposed for Muaitheabhal Wind Farm, which is located to the southeast of the Proposed Development. The original EIA could not be accessed for this cumulative development, only documents pertaining to supplementary environmental information requests in 2015.

8.11.7 NS objected to the proposal unless mitigation measures were imposed to address major negative impacts on otter. SEPA objected to the proposal unless conditions were imposed to mitigate the potential impacts on the water environment. The Outer Hebrides Fisheries Trust (OHFT) objected to the proposal because the development is within 200 m of numerous sensitive watercourses and is likely to harm important fish populations.

8.11.8 Scottish Ministers were of the opinion that many of the ecological effects could be mitigated by condition, especially with regard to safeguarding the interests of otter. An ECoW would be appointed to monitor compliance. A construction method statement would also be required and include details of pollution prevention to provide reassurance on the issue of maintaining water quality.

8.11.9 It is likely that the loss of blanket bog and wet heath habitat in combination with the non-significant losses from the Proposed Development would amount to a combined percentage of peatland habitat loss and this effect is considered to be **significant**.

#### Muaitheabhal East Extension

8.11.10 Six turbines are proposed for Muaitheabhal East Extension, which is located to the southeast of the Proposed Development. The cumulative development contains similar habitats to the Proposed Development, including blanket bog and wet heath. Otter activity was low.

8.11.11 The potential effects considered were habitat loss and pollution of watercourses. Residual effects were considered to be not significant for otter and watercourses but significant for the loss of blanket bog and wet heath.

8.11.12 It is likely that the loss of blanket bog and wet heath habitat in combination with the non-significant losses from the Proposed Development would amount to a combined percentage of peatland habitat loss and this effect is considered to be **significant**.

#### Muaitheabhal South Extension

8.11.13 Twelve turbines are proposed for Muaitheabhal South Extension, which is located to the southeast of the Proposed Development. The cumulative development contains similar habitats to the Proposed Development, including blanket bog and wet heath.

8.11.14 The potential effects considered were habitat loss, loss of life and degradation of habitats relating to otters, and habitat degradation relating to fish, and all were considered to be significant. Mitigation measures included micro-siting of turbines to minimise the loss of peat during construction, pre-construction otter surveys, training of on-site staff regarding ecological awareness, and directing lighting away from sensitive areas. Despite the mitigation proposed, significant effects were considered to remain from the loss of blanket bog and wet heath.

8.11.15 It is likely that the loss of blanket bog and wet heath habitat in combination with the non-significant losses from the Proposed Development would amount to a combined percentage of peatland habitat loss and this effect is considered to be **significant**.

### Beinn Thulabaigh Wind Turbine

- 8.11.16 A single turbine is proposed for Beinn Thulabaigh, which is located to the northwest of the Proposed Development. The cumulative development contains similar habitats to the Proposed Development, including blanket bog on deep peat.
- 8.11.17 The potential effects considered were habitat loss and changes to the hydrology of the blanket bog, though neither were considered to be significant. Mitigation measures included blanket bog reinstatement and a habitat management plan.
- 8.11.18 The potential in-combination impacts would be minor and **not significant** given the scale and nature of the works relating to the construction of a single turbine would be localised and on a much smaller scale when compared to the Proposed Development.

### Aignish Community Wind Farm

- 8.11.19 Two turbines are proposed for the Aignish Community Wind Farm, which is located to the west of the Proposed Development. The cumulative development contains similar habitats to the Proposed Development, including blanket bog.
- 8.11.20 The potential effects considered were habitat loss.
- 8.11.21 The potential in-combination impacts would be minor and **not significant** given the scale and nature of the works relating to the construction of two turbines would be localised and on a much smaller scale when compared to the Proposed Development.

### Summary of Cumulative Effects

- 8.11.22 The main cumulative effects are considered to be loss of peatlands (primarily blanket bog and wet heath), GWDTEs and disturbance of otter. Given the predicted significant effects on blanket bog for Stornoway Wind Farm and the Muaitheabhal Wind Farm and extensions, the loss of blanket bog and wet heath could be a **significant cumulative effect**, even though the effect of habitat loss for the Proposed Development is considered to be not significant. However, implementing mitigation, including peatland restoration, could reduce potential impacts and compensate for the loss of habitat by providing better quality blanket bog in the medium- to long-term. Standard pollution prevention measures, habitat reinstatement and maintenance of hydrological connectivity would minimise impacts on GWDTEs. As a result, the overall effect of the cumulative loss of GWDTEs is considered to be **not significant**.
- 8.11.23 A combined disturbance of otter could occur, though no activity was recorded in the field Survey Area for the Proposed Development. Construction activities would likely have a localised, short-term, low magnitude disturbance effect on this species. As a result, the cumulative effect is considered to be **not significant**.
- 8.11.24 In summary, **significant cumulative effects** are possible on blanket bog and wet heath in combination with the above cumulative developments. However, no significant cumulative effects are considered to occur on GWDTEs and otter.

## 8.12 Summary

- 8.12.1 This chapter has considered potential impacts and their associated effects on ecological features, such as designated nature conservation sites, habitats, and protected species in line with best practice guidance from CIEEM<sup>63</sup>.
- 8.12.2 The field Survey Area was surveyed in October 2021 and February 2022 to provide baseline information on habitats and faunal species. Surveys included an extended Phase 1 habitat survey and NVC surveys. The dominant habitats were blanket bog and wet heath. Potential GWDTEs were recorded throughout the field Survey

<sup>63</sup> CIEEM, (2018), *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Version 1.1. URL: <https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.1.pdf> [2nd August 2022].

Area. No field signs of protected species were recorded, though the habitats were considered to be suitable for otter and slow worm. Three invasive plant species were recorded in the field Survey Area, comprising wall cotoneaster, rhododendron and giant-rhubarb.

- 8.12.3 Following the application of mitigation and good practice measures, such as native woodland retention measures, compensatory planting, peatland restoration of a minimum of 0.6 ha, habitat reinstatement (including peatland reinstatement), and a CEMP, no adverse residual effects are predicted, with the exception of woodland. A long-term significant adverse residual effect would remain for the loss of woodland until such time as the replacement woodland areas are fully established and functional (from 50 years).
- 8.12.4 Significant cumulative effects on blanket bog and wet heath are predicted from the Proposed Development in combination with the surrounding cumulative developments.

**Table 8.14: Summary of Potential Significant Effects of the Proposed Development**

Likely Significant Effect	Mitigation Proposed	Means of Implementation	Outcome / Residual Effect
<b>Construction</b>			
Woodland habitat loss	Compensatory woodland planting	Planning condition to secure HMP.	Significant until compensatory planting areas have established.
No others predicted	Good practice measures and standard mitigation would still be completed, including peatland reinstatement and restoration and pollution prevention measures.	CEMP and planning condition.	N/A
<b>Operation</b>			
None predicted	N/A	N/A	N/A
<b>Cumulative Construction</b>			
Habitat loss of blanket bog and wet heath	Peatland reinstatement and restoration.	CEMP and planning condition.	Significant until peatland restoration areas have established.
<b>Cumulative Operation</b>			
None predicted	N/A	N/A	N/A

## 9. ORNITHOLOGY

### 9.1 Introduction

9.1.1 This chapter assesses the potential effects on Ornithology associated with the construction, operation and decommissioning of the Proposed Development. This chapter (and its associated Figures and Appendices) is not intended to be read as a standalone assessment and reference should be made to the introductory chapters of this EIAR (**EIAR Volume 2, Chapters 1-5**).

9.1.2 The assessment has been carried out by Danny Oliver MCIEEM, Principal Ornithologist, Ramboll UK Ltd. Danny has over nine years' experience with Ramboll designing and undertaking ornithological field surveys and undertaking ornithological impact assessments including multiple previous overhead line (OHL) projects similar to the Proposed Development.

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

- Volume 3a: Figures
  - Figure 9.1: Ornithology Survey Locations;
  - Figure 9.2: Designated Sites;
  - Figure 9.3 a – g: Vantage Point Survey Results;
  - Figure 9.4 a – i: Moorland Bird Survey Results;
  - Figure 9.5 a – f: Wintering Bird Survey Results; and
  - Figure 9.7: Proposed Mitigation.
- Volume 4: Technical Appendices
  - Technical Appendix 9.1: Ornithology Methodology;
- Volume 5: Confidential Documents
  - Figure 9.6: Confidential Survey Results
  - Technical Appendix 9.2: Confidential Results; and
  - Technical Appendix 9.3: Habitats and Regulations Appraisal.

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

### 9.2 Assessment Methodology

#### Scope of Assessment

9.2.1 The chapter considers effects on:

- protected sites designated for ornithological species; and
- bird species and populations in and around the Proposed Development at all times of year.

9.2.2 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 'worst case scenario'.

9.2.3 The assessment is based on the Proposed Development as described in **Chapter 2: Description of the Proposed Development (EIAR Volume 2)**. This chapter focusses on the effects of the construction, operation and decommissioning phases of the Proposed Development upon Important Ecological Features (IEF)<sup>1</sup> aligning with EclA Guidelines from the Chartered Institute of Ecology and Environmental Management<sup>2</sup> (hereafter the

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<sup>1</sup> These are any ornithological entity which could be impacted by the Proposed Development, including species, habitats or designated sites.

<sup>2</sup> CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.1. Available: <https://cieem.net/wp-content/uploads/2018/08/EclA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.1.pdf> [Accessed August 2022]

‘CIEEM EclA Guidelines’). This EclA has been prepared with reference to the applicable legislative framework and national and local planning policy, with these listed below. Specific guidance documents for habitats and species are referenced throughout this chapter and the associated Appendices.

9.2.4 The scope of the assessment has been informed by consultation responses summarised in **Table 9.1** and the following guidelines/policies:

#### *Legislation*

9.2.5 Relevant legislation has been reviewed and considered as part of this ornithology assessment. Of relevance are:

- Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds<sup>3</sup>;
- EC Directive on the Conservation of Natural Habitats and Wild Flora and Fauna, 92/43/EEC 1992<sup>4</sup>;
- Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019<sup>5</sup>;
- The Conservation of Habitats and Species Regulations 2017<sup>6</sup>;
- Conservation (Natural Habitats Etc.) Regulations 1994<sup>7</sup>;
- Wildlife and Countryside Act 1981<sup>8</sup>;
- Nature Conservation (Scotland) Act 2004<sup>9</sup>;
- Wildlife and Natural Environment (Scotland) Act 2011<sup>10</sup>;
- UK Post-2010 Biodiversity Framework 2012<sup>11</sup>;
- Electricity Act 1989<sup>12</sup>;
- The Electricity Works (Environmental Impact Assessment) (Scotland) Act 2017<sup>13</sup>; and
- the Ramsar Convention on Wetlands 1971<sup>14</sup>.

#### *Planning Policy*

9.2.6 Relevant planning policies reviewed for this biodiversity assessment are:

- Scottish Planning Policy<sup>15</sup> 2014<sup>16</sup>;
- UK Biodiversity Action Plan (BAP) 2010<sup>17</sup>;
- Scottish Biodiversity List (SBL) 2005<sup>18</sup>;

<sup>3</sup> EC Directive on the Conservation of Wild Birds (2009): <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32009L0147> [Accessed August 2022].

<sup>4</sup> EC Directive on the Conservation of Natural Habitats and Wild Flora and Fauna (1992): [http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index\\_en.htm](http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm) [Accessed August 2022].

<sup>5</sup> The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations (2019): [https://www.legislation.gov.uk/ukdsi/2019/9780111176573#:~:text=%20The%20Conservation%20of%20Habitats%20and%20Species%20\(Amendment\),of%20Capturing%20or%20killing%20fish%20are%E2%80%94%20More](https://www.legislation.gov.uk/ukdsi/2019/9780111176573#:~:text=%20The%20Conservation%20of%20Habitats%20and%20Species%20(Amendment),of%20Capturing%20or%20killing%20fish%20are%E2%80%94%20More) [Accessed August 2022].

<sup>6</sup> The Conservation of Habitats and Species Regulations (2017): <https://www.legislation.gov.uk/uksi/2017/1012/contents/made> [Accessed August 2022].

<sup>7</sup> The Conservation (Natural Habitats Etc.) Regulations (as amended) (1994): <http://www.legislation.gov.uk/uksi/1994/2716/contents/made> [Accessed August 2022].

<sup>8</sup> The Wildlife and Countryside Act (as amended) (1981): <http://www.legislation.gov.uk/ukpga/1981/69> [Accessed August 2022].

<sup>9</sup> Nature Conservation (Scotland) Act (as amended) (2004): <http://www.legislation.gov.uk/asp/2004/6/contents> [Accessed August 2022].

<sup>10</sup> Wildlife and Natural Environment (Scotland) Act (2011): <http://www.legislation.gov.uk/asp/2011/6/enacted> [Accessed August 2022].

<sup>11</sup> UK Post-2010 Biodiversity Framework (2012): <http://jncc.defra.gov.uk/page-6189> [Accessed August 2022].

<sup>12</sup> Electricity Act (1989): <https://www.legislation.gov.uk/ukpga/1989/29/contents> [Accessed August 2022].

<sup>13</sup> The Electricity Works (Environmental Impact Assessment) (Scotland) Act (2017): <http://www.legislation.gov.uk/ssi/2017/101/contents/made> [Accessed August 2022].

<sup>14</sup> Ramsar Convention on Wetlands (1971): <http://www.ramsar.org/about-the-ramsar-convention> [Accessed August 2022].

<sup>15</sup> No acronym, SPP used for Species Protection Plan.

<sup>16</sup> Scottish Planning Policy (2014): <https://www.gov.scot/publications/scottish-planning-policy/pages/2/> [Accessed August 2022].

<sup>17</sup> UK BAP: <http://jncc.defra.gov.uk/default.aspx?page=5155> [Accessed August 2022].

<sup>18</sup> The Scottish Biodiversity List (2005): <https://www.nature.scot/scottish-biodiversity-list-documents> [Accessed August 2022].

- 2020 Challenge 2013<sup>19</sup>;
- Western Isles Local BAP<sup>20</sup>; and
- the Outer Hebrides Local Development Plan (LDP)<sup>21</sup>.

#### Guidance

- 9.2.7 Best practice guidance has been implemented when undertaking field surveys as detailed in **Technical Appendix 9.1: Ornithology Methodology (EIAR Volume 4)**.

#### Extent of the Study Area

- 9.2.8 The ornithology baseline was established using an Ornithology Desk Study Area and an Ornithology Field Survey Area. The Ornithology Desk Study Area was defined as a 10 km buffer on either side of the Proposed OHL, as shown on **Figure 9.1: Ornithological Study Areas (EIAR Volume 3a)**. The Ornithology Field Survey Area extended up to 2 km beyond the Proposed Development on either side of the Proposed OHL, with smaller areas surveyed dependent on the target species of the survey methodologies used. The extent of the limits of deviation<sup>22</sup> (LOD) of the Proposed Development (hereafter “the LOD”) falls entirely within the field Ornithology Field Survey Area. The Breeding Bird Surveys (BBS) did not cover the full Ornithology Field Survey Area, instead focussing on the LOD.

#### Consultation Undertaken to Date

- 9.2.9 Consultation undertaken to date mainly pertains to the EIA Scoping Report. Scoping responses received at the time of writing that are relevant to this chapter are captured in **Table 9.1**. Further information can be found in **Technical Appendix 4.3: Scoping Consultation Register (EIAR Volume 4)**.

<b>Organisation</b>	<b>Type of Consultation</b>	<b>Response</b>	<b>How response has been considered</b>
Comhairle nan Eilean Siar	Scoping Response (6 <sup>th</sup> July 2022)	<p>Crosses Lewis Peatlands Special Protection Area (SPA), Ramsar, Important Bird Area (IBA) and Site of Special Scientific Interest (SSSI). Surveys proposed considered sufficient to assess likely significant effects.</p> <p>Noted that a Habitats Regulations Appraisal (HRA) is required for Lewis Peatlands SPA, North Harris Mountains SPA and West Coast of the Outer Hebrides SPA.</p> <p>EIA required to assess impacts on ornithology. Mitigation suggested including phasing of works to avoid breeding season (February to July),</p>	<p>Noted</p> <p>Noted</p> <p>Mitigation is discussed in section 9.8 Mitigation.</p>

<sup>19</sup> The 2020 Challenge: <http://www.gov.scot/Publications/2013/06/5538> [Accessed August 2022].

<sup>20</sup> Local Action Plans (2005), URL: <https://www.cne-siar.gov.uk/planning-and-building/conservation/biodiversity/planning-process/> [Accessed August 2022].

<sup>21</sup> Outer Hebrides LDP (2017), URL: <https://www.cne-siar.gov.uk/have-your-say/consultations/2017/outer-hebrides-local-development-plan/#:~:text=The%20Proposed%20Outer%20Hebrides%20Local%20Development%20Plan%202,role%20to%20play%20in%20the%20delivery%20of%20this> . [Accessed August 2022].

<sup>22</sup> The LOD is defined as 100 m in width, 50 m either side of the Proposed Alignment.

**Table 9.1: Scoping responses and other consultation of relevance**

		undergrounding and bird diverters.	
NatureScot	Scoping Response (13 <sup>th</sup> June 2022)	Significant effects are likely on Lewis Peatlands SPA from collision risk, disturbance to breeding birds and loss or damage of habitats. HRA required and habitat loss to be assessed using NVC data.	HRA undertaken in <b>Technical Appendix 9.3: Habitats Regulation Appraisal (EIAR Volume 5)</b> . Habitat loss numbers taken from <b>Chapter 8: Ecology (EIAR Volume 2)</b> and based on NVC survey data.

### Effects Scoped Out

9.2.10 Habitat Loss (Construction and Operational Phase) were scoped out in the scoping report, but following feedback from NatureScot, this effect shall now be scoped into the assessment.

#### *Barrier Effects*

9.2.11 A barrier effect would occur where the vertical configuration of wires and poles creates an actual or perceived barrier that bird species may not cross, or at the very least would need to habituate to crossing.

9.2.12 There are two existing 132 kV wood pole lines in close proximity to the Proposed Development throughout the entire route. This suggests that birds would habituate/have already habituated to the presence of an additional trident pole line and would not treat it as a barrier. In addition birds are considered likely to avoid the operational structure, which will be highly visible within the surrounding, predominantly open landscape. Therefore, the effect of this impact is considered to be of negligible significance.

#### *Disturbance and Displacement (Operational Phase)*

9.2.13 When operational, the Proposed Development would require very occasional visits by site personnel both on foot and in vehicles for maintenance activities. While the Proposed Development may also result in disturbance arising from noise and visual effects associated with the wires, the magnitude of both of these potential impacts is considered too low to cause a significant effect.

#### *Operational Electrocution*

9.2.14 Electrocution of birds by OHLs is possible where a bird is able to touch a conductor while it is perched on an earthed pole, touch a conductor and the earth wire simultaneously or touch two conductor wires simultaneously. Electrocution of juvenile and subadult golden and white-tailed eagles has been recorded six times on Lewis and Harris since 2012<sup>23</sup>. The configuration of the wires and poles of the Proposed Development means that none of those scenarios are possible as the gaps between conductors and perch points would be greater than the wingspan of any species found in the area. No significant effect is predicted for this impact.

### 9.3 Method of Baseline Data Collection

9.3.1 The methods of baseline data collation, including desk and field survey methods, is provided in **Technical Appendix 9.1: Ornithology Methodology (EIAR Volume 4)**.

<sup>23</sup> Pers comms with Robin Reid, formerly of RSPB.

### Desk Study

- 9.3.2 A desk study was undertaken using the NatureScot SiteLink<sup>24</sup> website to identify designated nature conservation sites (10 km for sites of international<sup>25</sup> importance and 2 km for those of national<sup>26</sup> importance). Special Protection Areas (SPAs), which are of international importance and Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs), which are of national importance. Data was also purchased from Lewis and Harris Raptor Study Group (LHRSG) using a data search buffer of 2.5 km around the Proposed Alignment.

### Field Survey

- 9.3.3 Field surveys were undertaken between March 2021 and July 2022. All field surveys were undertaken by a combination of Ramboll ornithologists and subcontractors from Stagfire Ecological Surveys (Stagfire). Ramboll ornithologists are all experienced in undertaking Vantage Point (VP) surveys on Lewis having previously worked on a programme of surveys for wind farm grid connections around Stornoway. Stagfire surveyors are similarly experienced and specialise in surveys of Lewis and Harris.
- 9.3.4 More detailed information on the surveys undertaken is provided in **Technical Appendix 9.1: Ornithology Methodology (EIAR Volume 4)**. The survey locations described below are shown on **Figure 9.1: Ornithology Survey Locations (EIAR Volume 3a)**.

#### *VP Surveys*

- 9.3.5 VP Surveys commenced in March 2021 and were completed in February 2022. Between Balallan and Stornoway/Arnish, surveys were repeated using the same survey locations that were used during a previous period of surveys<sup>27</sup>. These survey locations were groundtruthed by Ramboll ornithologists in March 2021, with 16 survey locations used. Between Harris substation and Balallan, 14 new VP locations were identified, with these also groundtruthed by Ramboll ornithologists in March 2021.

#### *Moorland Bird Surveys*

- 9.3.6 Moorland Bird Surveys (MBS) were undertaken to identify the suite of breeding bird species that could be impacted by the construction/operation of the Proposed Development. These surveys involved walking the length of the Proposed Development on three occasions; early breeding season (early April to early May), mid breeding season (mid-May to mid-June) and late breeding season (mid-June to mid-July). All birds observed or heard were recorded along with the activity they were exhibiting. This survey covered the Preferred Alignment and a buffer of 500 m either side.

#### *Schedule 1 Listed Species of Raptor Surveys*

- 9.3.7 These surveys were informed by the findings of the VP surveys and by the data purchase from LHRSG. Surveys were undertaken from six locations, over three visits between March and July 2022.

#### *Nesting Diver Surveys*

- 9.3.8 Lochs suitable for supporting diver species *Gavia sp.* were surveyed to identify if any divers were recorded breeding on them. These surveys were undertaken alongside the MBS.

#### *Wintering Bird Surveys*

- 9.3.9 Wintering bird surveys were undertaken to determine usage of the Ornithology Field Survey Area and identify key waterbodies for wintering birds. Survey visits were undertaken once each month, between October 2021 and March 2022, at each of eight survey locations.

<sup>24</sup> NatureScot Sitelink:

<sup>25</sup> i.e., Special Protection Areas (SPAs) and Ramsar sites

<sup>26</sup> i.e., Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs)

<sup>27</sup> Surveys were previously undertaken between 2013 and 2016 in relation to a separate SSEN project (the proposed Balallan-Stornoway 132 kV OHL Replacement) which was put on hold.



### Limitations and Assumptions

- 9.3.10 It should be noted that the availability and quality of the data obtained during desk studies is reliant on third party responses and recorders. This varies from region to region and for different species groups. Furthermore, the comprehensiveness of data often depends on the level of coverage, the expertise and experience of the recorder and the submission of records to the local recorder.
- 9.3.11 Due to the remote nature of the Ornithology Field Survey Area, surveys were not impacted by coronavirus restrictions as local surveyors were able to travel separately to the Ornithology Field Survey Area and maintain social distancing.

## 9.4 Method of Assessment

### Sensitivity of Receptor

- 9.4.1 The criteria for defining importance of features and characterising impacts are provided in **Technical Appendix 9.1: Ornithology Methodology (EIAR Volume 4)**. Ornithological features are given an importance rating based on a geographic scale. The classification of importance assesses ornithological features in relation to their population size, diversity, rarity, fragility, typicalness, connectivity with surroundings, intrinsic value, recorded history, and potential value.

### Magnitude of Impact

- 9.4.2 Detailed consideration of impact magnitude is a standard component of the EclA process. It is incorporated to succinctly describe the scale of individual impacts. The magnitude of effects is predicted quantitatively where possible, considering the duration and reversibility of effects, and is considered spatially and temporally as described within **Table 9.2**. Effects can be adverse, neutral or beneficial.

<b>Spatial impact magnitude</b>	<b>Description</b>
High	Total/near total loss of a bird population due to mortality or displacement or major reduction in the status or productivity of a bird population due to mortality or displacement or disturbance.
Medium	Partial reduction in the status or productivity of a bird population due to mortality or displacement or disturbance.
Low	Small but discernible reduction in the status or productivity of a bird population due to mortality or displacement or disturbance.
Negligible	Very slight reduction in the status or productivity of a bird population due to mortality or displacement or disturbance. Reduction barely discernible, approximating to the 'no change' situation.

### Cumulative Effects

- 9.4.3 Cumulative impacts have been assessed following guidance from NatureScot (NS) on assessing cumulative impacts from wind farm developments (NatureScot, 2018)<sup>28</sup>. No guidance specific to OHLs has been produced. Cumulative impacts are assessed by considering the impacts of the Proposed Development at the same time as the impacts arising from another development. This is done additively, i.e. adding the impacts of the two developments together and assessing if the new cumulative impact results in a significant effect.

<sup>28</sup> NatureScot (2018) Assessing the Cumulative Impacts of Onshore Wind Farms on Birds. Guidance Series.

### Significance Criteria

- 9.4.4 Significant effects are assessed with reference to the geographical importance of the ornithological feature. However, the scale of significance of an effect may not be the same as the geographic context in which the feature is considered important. For example, a significant effect on a species which is protected by national legislation, does not necessarily equate to a significant effect on its national population.
- 9.4.5 For the purposes of Environmental Impact Assessment (EIA), apart from in exceptional circumstances, a significant effect, as defined by the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017<sup>29</sup> is only considered to be possible where the feature in question is considered to be of regional, national, or international importance. That is not to say that impacts from the Proposed Development cannot result in ornithologically significant effects on features of county or local importance, simply that those effects are not likely to be significant under EIA Regulations, unless the effect is likely to undermine the conservation status or distribution of the species. Whether an effect at local or county importance is considered to be significant or not significant under the EIA Regulations is made clear in the impact assessment for each ornithological feature.
- 9.4.6 Mitigation and/or compensation is proposed for all effects considered significant under the EIA Regulations. Where appropriate, as part of additional good practice, mitigation and/or compensation may be proposed for ornithologically significant effects on features of county or local importance.
- 9.4.7 **Table 9.3** illustrates how residual effects are determined by comparison of the sensitivity of receptors with the magnitude of predicted change. For the purposes of this assessment significant effects are [e.g. major or major/moderate].

<b>Spatial impact magnitude</b>	<b>Description</b>
Major	This is a significant effect (either beneficial or adverse), as the effect is likely to result in a long term significant adverse effect on the integrity of the receptor at a particular geographical scale.
Moderate	This is a significant effect (either beneficial or adverse), as the effect is likely to result in a medium term or partially significant adverse effect on the integrity of the receptor at a particular geographical scale.
Minor	The effect is likely to adversely affect the receptor at an insignificant level by virtue of its limited duration and/or extent, but there will probably be no effect on its integrity. This is not a significant effect.
Negligible	No discernible effect is expected as a result of the Proposed Development.

## 9.5 Baseline Conditions

### Current Baseline

#### Desk Study

- 9.5.1 The designated sites within the Ornithology Desk Study Area are shown on **Figure 9.2: Designated Sites (EIAR Volume 3a)**. As a result of the information provided by the desk-based study and field surveys, the following ornithological features are considered to be of sufficient sensitivity to warrant inclusion in the EIA:
- Designated sites, where qualifying species have potential connectivity with the Proposed Development and where surveys recorded flights of qualifying species within the Ornithology Field Survey Area, i.e., West Coast of the Outer Hebrides SPA, Lewis Peatlands SPA, Ramsar and IBA and North Harris Mountains SPA and IBA. These areas are protected under the European Commission Council Directive 2009/147/EC (Birds Directive),

<sup>29</sup> The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 <http://www.legislation.gov.uk/ssi/2017/101/contents/made> [Accessed August 2022]

which places importance on the protection of habitats for endangered and migratory species. Designated sites are also protected under Council Directive 92/43/EEC (Habitats Directive).

- West Coast of the Outer Hebrides SPA is classified for breeding red-throated diver *Gavia stellata* and non-breeding black-throated diver *Gavia arctica*, eider *Somateria mollissima*, great northern diver *Gavia immer*, long-tailed duck *Clangula hyemalis*, red-breasted merganser *Mergus serrator* and Slavonian grebe *Podiceps auritus*.
- Lewis Peatlands SPA is classified for breeding black-throated diver, dunlin *Calidris alpina schinzii*, golden eagle *Aquila chrysaetos*, golden plover *Pluvialis apricaria*, greenshank *Tringa nebularia*, merlin *Falco columbarius* and red-throated diver. Lewis Peatlands Ramsar qualifies under Criterion 1 for supporting one of the largest, intact areas of blanket bog, under Criterion 2 for supporting nationally important breeding populations of red-throated diver, black-throated diver, golden plover and greenshank and under Criterion 6 for supporting internationally important numbers of breeding dunlin. Lewis Peatlands IBA is classified for breeding waders, divers, raptors and corncrake *Crex crex*.
- North Harris Mountains SPA is classified for breeding golden eagle.
- The following species known to be present within the Ornithology Desk Study Area based on a review of NS Sitelink, data purchased from LHRSG and local knowledge of surveyors:
  - Golden eagle, included on Schedule 1 of the Wildlife and Countryside Act 1981;
  - Hen harrier, included on Schedule 1 of the Wildlife and Countryside Act 1981 and a red-listed species of bird of conservation concern<sup>30</sup>;
  - Merlin, included on Schedule 1 of the Wildlife and Countryside Act 1981 and a red-listed species of conservation concern;
  - White-tailed eagle, included on Schedule 1 of the Wildlife and Countryside Act 1981 and an amber-listed species of conservation concern;
  - Breeding red-throated and black-throated diver, both included on Schedule 1 of the Wildlife and Countryside Act 1981 and with black-throated diver being amber listed species of conservation concern;
  - Great skua *Stercorarius skua*; amber listed species of conservation concern;
  - Breeding waders:
    - Dunlin, red listed species of conservation concern;
    - Golden plover; and
    - Greenshank, included on Schedule 1 of the Wildlife and Countryside Act 1981 and amber listed species of conservation concern.
  - Corncrake, included on Schedule 1 of the Wildlife and Countryside Act 1981 and a red-listed species of conservation concern; and
  - Wintering wildfowl, susceptible to collision with OHLs, several species which are included on Schedule 1 of the Wildlife and Countryside Act 1981, such as greylag goose *Anser anser* and whooper swan *Cygnus cygnus*. Both of these species are amber listed species of conservation concern.

9.5.2 Further data obtained is described in **Technical Appendix 9.2: Confidential Results (EIAR Volume 5)**.

#### Field Surveys

9.5.3 Field surveys undertaken for the EIA are described below.

<sup>30</sup> Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds* 114: 723-747. Available online at <https://britishbirds.co.uk/content/status-our-bird-populations>.

## Field Surveys – VP Surveys

9.5.4 The results of the VP surveys are shown on **Figures 9.3a – g: Vantage Point Survey Results (EIAR Volume 3a)** and are summarised in **Table 9.4**.

Species Code	Species	Total Survey		Crossing Proposed Development at CRH	
		Flights	Individuals	Flights	Individuals
AE	Arctic tern <i>Sterna paradisaea</i>	1	5	0	0
BV	Black-throated diver	29	46	3	4
BV/RH	Diver Species <i>Gavia sp.</i>	2	2	0	0
CA	Cormorant <i>Phalacrocorax carbo</i>	1	1	0	0
CN	Common tern <i>Sterna hirundo</i>	3	3	0	0
CU	Curlew <i>Numenius arquata</i>	5	6	0	0
DN	Dunlin	5	28	1	7
EA	Golden eagle	392	471	18	19
GD	Goosander <i>Mergus merganser</i>	3	6	0	0
GJ	Greylag goose	33	205	2	27
GK	Greenshank	25	34	6	9
GN	Goldeneye <i>Bucephala clangula</i>	1	8	0	0
GP	Golden plover	26	217	4	38
GX	Gannet <i>Morus bassanus</i>	4	5	0	0
GZ	Glaucous gull <i>Larus hyperboreus</i>	2	2	0	0
H.	Grey heron <i>Ardea cinerea</i>	2	2	0	0
HH	Hen harrier	106	119	3	3
K.	Kestrel <i>Falco tinnunculus</i>	1	1	1	1
MA	Mallard <i>Anas platyrhynchos</i>	1	2	1	1
ML	Merlin	44	47	3	4
ND	Great-northern diver	3	3	0	0
NX	Great skua <i>Stercorarius skua</i>	53	62	10	11
PE	Peregrine <i>Falco peregrinus</i>	4	4	0	0
PG	Pink-footed goose <i>Anser brachyrhynchus</i>	5	426	0	0
RH	Red-throated diver	82	128	1	2
RM	Red-breasted merganser	6	8	1	2
RN	Raven <i>Corvus corax</i>	1	1	0	0
SH	Sparrowhawk <i>Accipiter nisus</i>	1	1	0	0
SN	Snipe <i>Gallinago gallinago</i>	2	2	0	0
WE	White-tailed eagle	226	248	16	16

**Table 9.4: Vantage Point Survey Results**

WE, EA	Eagle Species	1	1	0	0
WS	Whooper swan	4	20	0	0

#### Golden Eagle

9.5.5 Golden eagles were the most recorded species during the vantage point surveys, with 392 flights recorded of 471 individuals. Of these flights, 18 of 19 individuals were recorded crossing the proposed development at collision risk height. These flights were recorded along the whole of the proposed development between Stornoway and Harris substation, with particular concentrations north of Laxay, Balallan, Airidh a Bhruaich, north of Bogha Glas and between Direcleit and Harris substation.

#### White-tailed Eagle

9.5.6 226 white-tailed eagle flights were recorded during the vantage point surveys, of 248 individuals. Of these flights, 16 of 16 individuals were recorded crossing the proposed development at collision risk height. These flights were also recorded along the whole of the proposed development, with a particular concentration at Airidh a Bhruaich, at the end of Loch Seaforth.

#### Black-throated Diver

9.5.7 29 black-throated diver flights were recorded during the vantage point surveys, of 46 individuals. Of these three of four individuals crossed the proposed development at collision risk height. The majority of these flights were recorded at the northern end of the proposed development, moving between the many lochans in this area. No flights were recorded south of Airidh a Bhruaich.

#### Red-throated Diver

9.5.8 82 red-throated diver flights were recorded during the vantage point surveys, of 128 individuals. Of this one flight of two individuals were recorded crossing the proposed development at collision risk height. These flights were concentrated at the northern end, near Arnish, around Loch a'Chnoic Duibhe and Loch Sanndabhat, around Loch an Eilean Liath and between Direcleit and Harris substation.

#### Hen Harrier

9.5.9 106 hen harrier flights were recorded during the vantage point surveys, of 119 individuals. Of these three flights of three individuals were recorded crossing the proposed development at collision risk height. The majority were recorded at the northern end of the proposed development, near Arnish, with some flights also recorded near Laxay, Balallan, Airidh a Bhruaich and Aline woodland. Only two flights were recorded south of Aline woodland, one at Aird a' Mhulaidh and another just north of Harris substation.

#### Merlin

9.5.10 44 merlin flights were recorded during the vantage point surveys, of 47 individuals. Of these three flights of four individuals were recorded crossing the proposed development at collision risk height. The main concentrations of these flights were at the northern end of the proposed development near Arnish and at the southern end.

#### Peregrine

9.5.11 Four peregrine flights were recorded during the vantage point surveys, of four individuals. None these flights were recorded crossing the proposed development at collision risk height. Two flights were recorded over Balallan (in June and September 2021). Two flights were recorded in August 2021, one south of Ardvoulie and the other over Ardhasaig.

#### Whooper Swan

9.5.12 Four whooper swan flights were recorded during the vantage point surveys, of six individuals. Of these no flights were recorded crossing the proposed development at collision risk height. Two flights, each of two birds, were

recorded in March 2021, one near Arnish and one over Aline. A flight of 14 birds were recorded flying north to the east of Loch na Deasport in April 2021. A flight of two birds was recorded flying east to the north of Abhainn Ghrioda in October 2021.

#### Greylag Goose

9.5.13 33 greylag goose flights were recorded during the vantage point surveys, of 205 individuals. Of these two flights of 27 individuals were recorded crossing the proposed development at collision risk height. 27 flights were recorded evenly spread between Aline and Stornoway, with flights recorded throughout the survey period. A single flight of three birds was recorded at Ardvoulie in April 2021. Five flights, of a total of 89 birds, were recorded between Tarbert and Harris Substation, with these flights recorded in April, September and October 2021.

#### Pink-footed Goose

9.5.14 Five pink-footed goose flights were recorded during the vantage point surveys, of 426 individuals. Of these no flights were recorded crossing the proposed development at collision risk height. Two flights, both of 170 birds each, were recorded in April 2021, one flying north to the east of Loch na Deasport and the other over Ardvoulie. Two flights of pink-footed geese were recorded in November 2021, both recorded flying east over Creed Enterprise Park. One flight of 40 birds was recorded flying west, to the south of Tarbert, in April 2021.

#### Dunlin

9.5.15 Five dunlin flights were recorded during the vantage point surveys, of 28 individuals. Of this one flight of seven individuals was recorded crossing the proposed development at collision risk height. All of these flights were recorded in May 2021. A flight of seven birds was recorded circling to the east of Loch na Deasport, before flying south. Two flocks of dunlin were recorded at Balallan, a flock of five birds flushed east by a white-tailed eagle and a flock of nine birds flying north over the existing line. Two flights were recorded around Loch na h-Inghinn, a single bird flying northeast to the south of the Loch and a flock of six birds flying south towards the loch from Loch Shobhail.

#### Golden Plover

9.5.16 26 golden plover flights were recorded during the vantage point surveys, of 217 individuals. Of these four flights of 38 individuals were recorded crossing the proposed development at collision risk height. 21 of these flights were recorded in March, April and May, during the passage period, with these flights recorded along the length of the Ornithology Field Survey Area. A single bird was recorded in June east of Loch an Eilean Liath and two flights were recorded in July (of a single bird north of Maraig and of two birds flying west towards Loch na Deasport). A single bird was recorded in October, flying north to the east of Loch Shobhail, and a flock of 40 birds were recorded flying south, to the south of Loch Mor a'Ghrianain.

#### Great Skua

9.5.17 53 great skua flights were recorded during the vantage point surveys, of 62 individuals. Of these ten flights of 11 individuals were recorded crossing the proposed development at collision risk height. All of these flights apart from one were recorded north of Liurbost. A flight of a single bird was recorded in July 2021 flying south, to the south of Aline Woodland. A flight of a single bird was recorded in August 2021 flying east towards Liurbost. The remaining flights were distributed between to the southwest of Loch a'Chnoic Duibhe and around the Creed Enterprise Park.

#### *Field Surveys – Moorland Bird Surveys*

9.5.18 There were 35 species of bird recorded as possibly, probably or confirmed breeding during the Moorland Bird Surveys. A further 17 species<sup>31</sup> were recorded during the surveys, but no evidence of breeding was observed.

<sup>31</sup> Arctic skua, bean goose, cormorant, corn bunting, curlew sandpiper, goldeneye, goldfinch, great-spotted woodpecker, grey heron, mallard, pied wagtail, redwing, red-breasted merganser. Sedge warbler, tufted duck, white-fronted goose and whooper swan.

The results of the Moorland Bird Survey are shown on **Figure 9.3a-i: Moorland Bird Survey Records (EIAR Volume 3a)**.

<b>Species Code</b>	<b>Species</b>	<b>Possibly Breeding</b>	<b>Probably Breeding</b>	<b>Confirmed Breeding</b>	<b>Total</b>
AE	Arctic tern	1			1
B.	Blackbird <i>Turdus merula</i>	1			1
BZ	Buzzard <i>Buteo buteo</i>		1		1
CH	Chaffinch <i>Fringilla coelebs</i>	2		1	3
CK	Cuckoo <i>Cuculus canorus</i>	3		1	4
CM	Common gull <i>Larus canus</i>	1			1
CS	Common sandpiper <i>Actitis hypoleucos</i>	26	6	3	35
CT	Coal tit <i>Periparus ater</i>	8			8
CU	Curlew	15	4	2	21
DI	Dipper <i>Cinclus cinclus</i>	3			3
DN	Dunlin	8	1		9
GB	Great black-backed gull <i>Larus marinus</i>	1	1		2
GJ	Greylag goose	2		2	4
GK	Greenshank	23	10	5	38
GP	Golden plover	19	7	5	31
GR	Greenfinch <i>Chloris chloris</i>	1			1
HC	Hooded crow <i>Corvus cornix</i>	1	1		2
HG	Herring gull <i>Larus argentatus</i>	1			1
L.	Lapwing <i>Vanellus vanellus</i>	2	1	1	4
LB	Lesser black-backed gull <i>Larus fuscus</i>	8			8
NX	Great skua	1			1
OC	Oystercatcher <i>Haematopus ostralegus</i>	14	1	1	16
R.	Robin <i>Erithacus rubecula</i>	1			1
RG	Red grouse <i>Lagopus lagopus</i>	2	1		3
RK	Redshank <i>Tringa totanus</i>	3	2		5
RN	Raven	3		1	4
SC	Stonechat <i>Saxicola rubicola</i>	9		2	11
SN	Snipe	13	5	2	20
T.	Teal <i>Anas crecca</i>	1		1	2
W.	Wheatear <i>Oenanthe oenanthe</i>	17	5	5	27
WR	Wren <i>Troglodytes troglodytes</i>	32	1	13	46

**Table 9.5: Moorland Bird Survey Results**

WW	Willow warbler <i>Phylloscopus trochilus</i>	1			1
	<b>Total</b>	<b>223</b>	<b>47</b>	<b>45</b>	<b>315</b>

9.5.19 The most common species recorded during the Breeding Bird Surveys were common sandpiper, curlew, greenshank, golden plover, snipe, wheatear and wren. Of the species recorded, greenshank is listed on Schedule 1 of the Wildlife and Countryside Act, as amended (1981), giving them additional protections compared with other species not listed on Schedule 1. 16 species listed as amber on BoCC5 were recorded during the Breeding Bird Surveys within the LOD, these were:

- Arctic tern;
- Common gull;
- Common sandpiper;
- Dipper;
- Great black-backed gull;
- Greylag goose;
- Greenshank;
- Lesser black-backed gull;
- Great skua;
- Oystercatcher;
- Redshank;
- Snipe;
- Teal;
- Wheatear;
- Wren; and
- Willow warbler.

9.5.20 Six species listed as red on BoCC5 were recorded during the Breeding Bird Surveys within the LOD, these were:

- Cuckoo;
- Curlew;
- Dunlin;
- Greenfinch;
- Herring gull; and
- Lapwing.

9.5.21 The following species for which Lewis Peatlands SPA is classified were recorded during the Moorland Bird Surveys:

- Dunlin;
- Golden plover; and
- Greenshank.

9.5.22 These species are all associated with blanket bog and heath habitats which could be impacted by habitat loss from the Proposed Development, especially where it crosses Lewis Peatlands SPA.



#### Field Surveys – Breeding Raptor Surveys

9.5.23 The following breeding raptor records were identified through data purchases and the Breeding Raptor Surveys, with more detail provided in **Technical Appendix 9.2: Confidential Records (EIAR Volume 5)**:

- Six golden eagle territories;
- Nine hen harrier territories (four confirmed as active during the Breeding Raptor Surveys);
- Four merlin territories (two confirmed as active during the Breeding Raptor Surveys);
- One white-tailed eagle territory; and
- One short-eared owl *Asio flammeus* territory identified during the Breeding Raptor Survey.

#### Field Surveys – Breeding Diver Surveys

9.5.24 The results of the Breeding Diver surveys are provided in more detail in **Technical Appendix 9.2: Confidential Records (EIAR Volume 5)**.

9.5.25 Black-throated divers were recorded as possibly breeding on four lochs during the Nesting Diver Surveys. No conclusive proof of breeding was recorded, but adult birds were recorded on the following lochs during more than one of the survey visits, hence the categorisation of possibly breeding.

9.5.26 Red-throated diver were recorded as being confirmed breeding on three lochs and possibly breeding on one during the Nesting Bird Surveys.

#### Field Surveys – Wintering Bird Surveys

9.5.27 The Wintering Bird Surveys recorded the expected suite of wintering bird species at each of the sites. Of particular note, classifying species for West Coast of the Outer Hebrides SPA were recorded at Loch Bun Abhainn Eadarra in January 2022 (two great northern divers) and February 2022 (one great northern diver and five red-throated divers). Classifying species for West Coast of the Outer Hebrides SPA were also recorded on West Loch Tarbert in November 2021 (one great northern diver), December 2021 (three great northern divers), January 2022 (one great northern diver), February 2022 (eight great northern divers and two red-throated divers) and March 2022 (four great northern divers).

#### Future Baseline

9.5.28 In the absence of the Proposed Development, the habitats identified within the Ornithology Field Survey Area are likely to continue to be present and maintained due to well established land management regimes. Given that scenario, there is no reason to believe that the suite of birds present would alter greatly. The most likely change would be an expansion of range of hen harriers, corncrake and other species that are colonising Lewis and Harris.

#### Sensitive Receptors

9.5.29 **Table 9.6** summarises the important ornithological features scoped into the assessment.

<b>Table 9.6: Nature Conservation Value of Important Ornithological Features Scoped-In</b>		
<b>Feature</b>	<b>Nature Conservation Value</b>	<b>Justification</b>
Lewis Peatlands SPA, Ramsar and IBA	International	The SPA is classified for breeding: <ul style="list-style-type: none"> <li>• Red-throated diver, 80 pairs, 9% GB population;</li> <li>• Black-throated diver, 13 pairs, 8% GB population;</li> <li>• Golden eagle, five pairs, 1% GB population;</li> <li>• Merlin, 20 pairs, 2% GB population;</li> <li>• Golden plover, 1,800 pairs, 8% GB population; and</li> </ul>

**Table 9.6: Nature Conservation Value of Important Ornithological Features Scoped-In**

		<ul style="list-style-type: none"> <li>Dunlin, 3,400 pairs, 37% GB population.</li> </ul> <p>The SPA is also classified for migratory greenshank with 140 pairs, 10.4% GB population.</p> <p>The SPA covers the bog and heath habitats that are present in central Lewis, away from the coast. The Proposed Development crosses the SPA for approximately 2 km with poles 1000B53 to 1000B68 and 1000B5A to 1000B5F (22 poles) proposed to be built on SPA ground.</p> <p>Per NS Connectivity Guidance<sup>32</sup> there is considered to be potential connectivity between this designated site and the Proposed Development.</p>
West Coast of Outer Hebrides SPA	International	<p>The SPA is classified for breeding:</p> <ul style="list-style-type: none"> <li>Red-throated diver, 58 pairs, 4.5% GB population.</li> </ul> <p>The SPA is classified for wintering:</p> <ul style="list-style-type: none"> <li>Great northern diver, 1,298 individuals, 52% GB population;</li> <li>Black-throated diver, 43 individuals, 7.2% GB population; and</li> <li>Slavonian grebe, 51 individuals, 4.6% GB population.</li> </ul> <p>The SPA is classified for migratory:</p> <ul style="list-style-type: none"> <li>Common eider, 5,074 individuals, 8.5% GB population;</li> <li>Long-tailed duck, 821 individuals, 7.5% GB population; and</li> <li>Red-breasted merganser, 239 individuals, 2.8% GB population.</li> </ul> <p>The SPA covers the shallow coastal waters on the western side of the Outer Hebrides, running from Harris down to Barra. The Proposed Development runs alongside the SPA near Loch Bun Abhainn Eadarra and West Loch Tarbert and lies 55 m from the SPA at its closest point.</p> <p>Per NS Connectivity Guidance<sup>33</sup> there is considered to be potential connectivity between this designated site and the Proposed Development.</p>
North Harris Mountains SPA	National	<p>The SPA is classified for breeding golden eagle, with 6 – 7 pairs supported, 1% GB population.</p> <p>The SPA covers the higher mountains at the northern end of Harris which provide good habitat for breeding golden eagles. The Proposed Development lies 1.2 km from this SPA at its closest point, just north of Bunavoneadar.</p> <p>Per NS Connectivity Guidance<sup>34</sup> there is considered to be potential connectivity between this designated site and the Proposed Development.</p>
Golden eagle	National	<p>Six known golden eagle territories were identified within 3 km of the Proposed Alignment<sup>35</sup>. These territory centres are approximately 1.5 km, 825 m, 2.8 km, 2.1 km, 250 m and 2.5 km from the Proposed Alignment. These all have potential to be impacted by the Proposed development.</p> <p>The level of golden eagle activity recorded during the VP survey programme within the Ornithology Field Survey Area is considered to be moderate. Golden eagles were the most frequently recorded species during the VP surveys; however the majority of flights were recorded at above Collision Risk Height (CRH).</p>

<sup>32</sup> NatureScot (2016) Assessing Connectivity with Special Protection Areas (SPAs). Guidance.

<sup>33</sup> NatureScot (2016) Assessing Connectivity with Special Protection Areas (SPAs). Guidance.

<sup>34</sup> NatureScot (2016) Assessing Connectivity with Special Protection Areas (SPAs). Guidance.

<sup>35</sup> 3 km is chosen as this discounts territories that cannot interact with the Proposed Development due to another golden eagle territory being in the way.

**Table 9.6: Nature Conservation Value of Important Ornithological Features Scoped-In**

		The 2020 Scottish Raptor Monitoring Scheme (SRMS) Report <sup>36</sup> confirms that five pairs occupied territories on Lewis and Harris in 2020.
White-tailed eagle	National	<p>Two known white-tailed eagle territories were identified within 5 km of the Proposed Alignment. These territories are 4.8 km and 3.6 km from the Proposed Alignment. These both have potential to be impacted by the Proposed Development.</p> <p>The level of white-tailed eagle activity recorded during the VP survey programme within the Ornithology Field Survey Area is considered to be moderate. White-tailed eagles were the second most frequently recorded species during the VP surveys, but only sixteen of these flights were recorded crossing the Proposed Development at CRH.</p> <p>The 2020 SRMS Report<sup>37</sup> confirms that 17 pairs occupied territories on Lewis and Harris in 2020.</p>
Black-throated diver	National	<p>Four possible black-throated diver territories were identified during the Breeding Diver Surveys. These possible breeding lochs are approximately 35 m, 610 m and two lochs that the Proposed Development crosses. These territories have potential to be impacted by the Proposed development.</p> <p>The level of black-throated diver flight activity is considered to be low. Three flights of four birds were recorded at CRH.</p> <p>Black-throated diver are a classifying species for Lewis Peatlands SPA suggesting they are present in Nationally significant numbers.</p>
Red-throated diver	National	<p>Three confirmed and one possible red-throated diver breeding lochs were identified during the Breeding Diver Surveys, with these being 2.8 km, 600 m, 310 m and 130 m from the Proposed Alignment. Three of these lochs have potential to be impacted by the Proposed Development.</p> <p>The level of red-throated diver flight activity is considered to be low. One flight of two birds was recorded crossing the Proposed Development at CRH.</p> <p>Breeding red-throated diver is a classifying species for Lewis Peatlands and West Coast of the Outer Hebrides SPAs, representing 9% and 4.5% respectively of the GB breeding population (although there may be some overlap between these figures).</p>
Hen harrier	Local	<p>Out of nine known hen harrier territories within the Ornithology Field Survey Area, four were recorded to be active in 2021. These were recorded as being 1.5 km, 250 m, 850 m and 1.5 km from the Proposed Development. The closest of these territories has potential to be impacted by the Proposed Development.</p> <p>The level of hen harrier flight activity is considered to be low. Three flights of single birds were recorded crossing the Proposed Development at CRH.</p> <p>The 2020 SRMS Report<sup>38</sup> confirms that three pairs occupied territories on Lewis and Harris in 2020.</p>
Merlin	National	Out of four known merlin territories within the Ornithology Field Survey Area, three were recorded to be active in 2021. These were recorded as

<sup>36</sup> Challis, A., Wilson, M.W., Eaton, M.A., Stevenson, A., Stirling-Aird, P., Thornton, M. & Wilkinson, N.I. (2022). Scottish Raptor Monitoring Scheme Report 2020. BTO Scotland, Stirling.

<sup>37</sup> Challis, A., Wilson, M.W., Eaton, M.A., Stevenson, A., Stirling-Aird, P., Thornton, M. & Wilkinson, N.I. (2022). Scottish Raptor Monitoring Scheme Report 2020. BTO Scotland, Stirling.

<sup>38</sup> Challis, A., Wilson, M.W., Eaton, M.A., Stevenson, A., Stirling-Aird, P., Thornton, M. & Wilkinson, N.I. (2022). Scottish Raptor Monitoring Scheme Report 2020. BTO Scotland, Stirling.

**Table 9.6: Nature Conservation Value of Important Ornithological Features Scoped-In**

		<p>1.3 km, 1.4 km and 3.3 km from the Proposed Alignment. None of these territories have potential to be impacted by the Proposed Development.</p> <p>The level of merlin flight activity is considered to be low. Three merlin flights of four individuals were recorded crossing the Proposed Development at CRH.</p> <p>The 2020 SRMS Report<sup>39</sup> confirms that three pairs occupied territories on Lewis and Harris in 2020.</p>
Peregrine	Local	<p>No peregrine territories were identified within the Ornithology Field Survey Area.</p> <p>The level of peregrine flight activity is considered negligible with only four flights recorded and none of these at CRH.</p> <p>The 2020 SRMS Report<sup>40</sup> confirms no peregrine bred on Lewis and Harris in 2020.</p>
Whooper swan	Local	<p>No whooper swans were recorded breeding within the Ornithology Field Survey Area.</p> <p>The level of whooper swan flight activity is considered negligible with all four flights recorded at above CRH.</p>
Greylag goose	Regional	<p>Greylag geese were recorded possibly breeding in two locations and confirmed breeding in two more. These territories were all at the northern end of the Proposed Development and within 500 m of the Proposed Alignment.</p> <p>The level of greylag goose flight activity is considered to be moderate, with two flights of 27 birds recorded crossing the Proposed Development at CRH.</p> <p>Lewis and Harris was formerly one of the last remaining refuges of British breeding greylag geese in the early 1900s. However reintroduction efforts and decreases in persecution levels led to increases in the population of Lewis and Harris and mainland Great Britain, to the extent that by 2010 the reintroduced population and the relic population are no longer considered discrete<sup>41</sup>. Greylag geese are listed on Schedule 1, Part 2 of the Wildlife and Countryside Act 1981<sup>42</sup>, meaning they have the additional protections that Schedule 1 species have, but only in certain locations (Lewis and Harris included) and between 1<sup>st</sup> February and 31<sup>st</sup> August.</p>
Pink-footed goose	Local	<p>No pink-footed geese were recorded breeding within the Ornithology Field Survey Area.</p> <p>The level of pink footed goose flight activity is considered to be negligible as no flights were recorded crossing the Proposed Development at CRH.</p>
Dunlin	National	<p>Eight possible dunlin territories and one probable territory were identified within the Ornithology Field Survey Area. None of these were recorded within the Lewis Peatlands SPA boundary. Only one of these was more than 1 km away from the Proposed Alignment. There is potential for some of these territories to be impacted by the Proposed Development.</p>

<sup>39</sup> Challis, A., Wilson, M.W., Eaton, M.A., Stevenson, A., Stirling-Aird, P., Thornton, M. & Wilkinson, N.I. (2022). Scottish Raptor Monitoring Scheme Report 2020. BTO Scotland, Stirling.

<sup>40</sup> Challis, A., Wilson, M.W., Eaton, M.A., Stevenson, A., Stirling-Aird, P., Thornton, M. & Wilkinson, N.I. (2022). Scottish Raptor Monitoring Scheme Report 2020. BTO Scotland, Stirling.

<sup>41</sup> British Greylag Goose (2022) Wildfowl and Wetland Trust. <https://monitoring.wwt.org.uk/our-work/goose-swan-monitoring-programme/species-accounts/british-greylag-geese/> [Accessed August 2022]

<sup>42</sup> The Wildlife and Countryside Act (as amended) (1981), Schedule 1: <https://www.legislation.gov.uk/ukpga/1981/69/schedule/1> [Accessed August 2022]

**Table 9.6: Nature Conservation Value of Important Ornithological Features Scoped-In**

		<p>The level of dunlin flight activity is considered to be low. One flight of seven individuals was recorded crossing the Proposed Development at CRH.</p> <p>Lewis is home to internationally important numbers of breeding dunlin, with 4,386 pairs present during the breeding season, per the citation for Lewis Peatlands Ramsar<sup>43</sup>, with this representing 17.5% of the biogeographic breeding population.</p>
Golden plover	National	<p>31 golden plover territories (19 possible, seven probable and five confirmed) were identified within the Ornithology Field Survey Area. None of these were recorded within the Lewis Peatlands SPA boundary. All of these territories are within 1 km of the Proposed Alignment. There is potential for some of these territories to be impacted by the Proposed Development.</p> <p>The level of golden plover flight activity is considered to be moderate, with four flights of 38 birds crossing the Proposed Development at CRH.</p> <p>Lewis is home to nationally important numbers of breeding golden plover with 1,800 breeding pairs present representing 8% of the GB population.</p>
Greenshank	National	<p>38 greenshank territories (23 possible, ten probable and five confirmed) were identified within the Ornithology Field Survey Area. There is potential for some of these territories to be impacted by the Proposed Development.</p> <p>The level of greenshank flight activity is considered to be low, with six flights of nine individuals crossing the Proposed Development at CRH.</p> <p>Lewis Peatlands SPA is an important stopping off point for migratory greenshank with 140 pairs passing through each year, representing 10.4% of the GB population.</p>
Great skua	Local	<p>One possible great skua territory was identified approximately 30 m from the Proposed Alignment. This territory has the potential to be impacted by the Proposed Development.</p> <p>The level of great skua flight activity is considered to be low, with ten flights of 11 individuals crossing the Proposed Development at CRH.</p> <p>The northern and western isles of Scotland are important internationally for breeding great skua<sup>44</sup>, but Lewis is less important for this species with only one possible breeding territory within the Ornithology Field Survey Area.</p>
Short-eared owl	Local	<p>One short-eared owl territory was identified approximately 900 m from the Proposed Alignment. This territory is not considered to have potential to be impacted by the Proposed development.</p> <p>No short-eared owl flights were recorded during the VP survey programme.</p>

## 9.6 Assessment of Effects

### Mitigation by Design

9.6.1 The Routeing and Alignment Selection process that the project went through is described in **Chapter 3: Consideration of Alternatives (EIAR Volume 2)**. This process was undertaken with a knowledge of baseline of

<sup>43</sup> Lewis Peatlands Ramsar Information Sheet (2006) JNCC. <https://rsis.ramsar.org/RSISapp/files/RSISrep/GB1046RIS.pdf> [Accessed August 2022]

<sup>44</sup> In celebration of Handa Island's great skuas (2021) Scottish Wildlife Trust. <https://scottishwildlifetrust.org.uk/2021/06/in-celebration-of-great-skuas/> [Accessed August 2022]

ornithological sensitivities, including designated sites and golden eagle territories. The Routing and Alignment Selection process was therefore able to avoid these features as much as possible.

9.6.2 Embedded mitigation relevant to this chapter includes tried and tested measures documented within **Technical Appendix 2.2: SSEN Transmission General Environmental Management Plans (GEMP) (EIAR Volume 4)** and **Technical Appendix 2.3: SSEN Transmission Species Protection Plans (SPP) (EIAR Volume 4)**.

9.6.3 It is reasonable to assume protocols detailed within the SSEN Transmission GEMPs and SPPs will be implemented successfully.

9.6.4 All additional mitigation will be captured and delivered through the Construction Environmental Management Plan (CEMP).

### Potential Construction Effects

9.6.5 The assessment of likely effects associated with construction is based on the typical activities described in **Chapter 2: Description of the Proposed Development (EIAR Volume 2)**.

#### *Destruction or Disturbance of Species' Nests*

9.6.6 The mitigation hierarchy set out in the Bird SPP will be adhered to. This establishes that all identified nests will be retained/avoided in the first instance. The SPP also sets out that works will maintain a species-specific buffer around nests (stated in the SPP and enforced by an Ecological Clerk of Works (ECoW)) to avoid/reduce potential disturbance impacts. Where this exclusion zone cannot be maintained, or a feature must unavoidably be destroyed as a last resort, the SPPs stipulate that a licence will be sought from NS.

#### *Designated Sites/SPA Bird Species*

9.6.7 Potential disturbance of SPA bird species is assessed in more detail in **Technical Appendix 9.3: Habitats Regulations' Appraisal (EIAR Volume 5)**. As the Proposed Development crosses Lewis Peatland SPA for approximately 2 km and a classifying species for the SPA was recorded in this stretch, potential disturbance impacts are possible on SPA species during the construction phase, resulting in potential **Moderate Adverse effects** on a feature of international importance.

#### *Non-SPA Bird Species*

9.6.8 There is potential for active birds' nests to be damaged or destroyed where works are required around nests, including tree felling. The tree felling works are due to take four months (February to May 2024), as set out in **Table 2.2, Chapter 2: Description of the Proposed Development (EIAR Volume 2)**. However, the total area involved in those works is anticipated to be small. Land take area is discussed in **Chapter 2: Description of the Proposed Development (EIAR Volume 2)**.

9.6.9 There is also potential for breeding birds to be disturbed by construction works and felling activities conducted near their nest sites. This could result in the abandonment and failure of the nest in the year of the works. This effect would be greatest in areas where woodland felling or temporary access track installation is required. Most of the species potentially affected would not be afforded specific additional protection under Schedule 1 of the Wildlife and Countryside Act, as amended (1981), but some, including greenshank and raptor species would. The number of nest sites which could potentially be affected could be quite high due to the scale of the Proposed Development and the fact it crosses a lot of suitable breeding habitat (blanket bog and heath) for Lewis Peatlands SPA species, including dunlin and golden plover. As such potential disturbance impacts on general breeding birds are therefore considered to have potential to result in **Moderate Adverse effects** on features of Local to National importance.

9.6.10 Since all birds' and their nests are legally protected, their damage and/or destruction could constitute an offence. Species listed on Schedule 1 of the Wildlife and Countryside Act are also protected from disturbance, including their dependent young. Consequently, standard mitigation measures are presented below in order to prevent such instances occurring as a result of the construction works.

9.6.11 There is also the possibility that the works could impact on the nests of rare and vulnerable breeding raptors (i.e. specially protected species listed on Schedule 1). The damage, destruction or disturbance of such species' nests is likely to result in the loss of any nesting attempt or production of young in the year of the works, unless the birds initiate a second nesting attempt elsewhere. Although the number of nests which might be affected is likely to be very small, the lower abundance and higher (National and Regional) conservation value of such species means that the effects of such impacts could be as high as Major Adverse significance. Potential for impact on each territory identified during surveys is assessed in **Table 9.7**.

<b>Species</b>	<b>Feature Information</b>	<b>Potential Impact Significance</b>
Golden eagle	The prescribed disturbance distance <sup>4546</sup> for golden eagle is 750–1,000 m. Two golden eagle territories lie within this distance of the Proposed Development, one 825 m away and the other 250 m, however neither of these have a direct line of sight to the Proposed Development. Both are located on crags/cliffs that face the opposite direction from the Proposed Development and would have landforms blocking any direct visual or noise disturbance from the Proposed Development. Therefore disturbance impacts on the closest golden eagle territories features of national importance, are considered to be unlikely. More specific information on the location of these confidential features is provided in <b>Technical Appendix 9.2: Confidential Results (EIAR Volume 5)</b> .	N/A
White-tailed eagle	Disturbance distances for white-tailed eagles vary dependent on the individuals, with some being more sensitive than others. Generally, a 500 m to 1000 m disturbance distance is recommended, although this may be decreased to 300 m if birds become habituated <sup>47</sup> . The closest white-tailed eagle territories are 3.6 km and 4.8 km away from the Proposed Development. There is not considered to be potential for a significant disturbance impact on these features of National importance. More specific information on the location of these confidential features is provided in <b>Technical Appendix 9.2: Confidential Results (EIAR Volume 5)</b> .	N/A
Black-throated diver	The recommended disturbance distance for black-throated diver is 500 m to 750 m <sup>48</sup> . Four black-throated diver territories exist within this distance of the Proposed Development, meaning that significant disturbance impacts on these features of national importance have potential to occur. More specific information on the location of these confidential features is provided in <b>Technical Appendix 9.2: Confidential Results (EIAR Volume 5)</b> .	Major Adverse
Red-throated diver	The recommended disturbance distance for red-throated diver is 500 m to 750 m <sup>49</sup> . Three red-throated diver territories exist within this distance of the Proposed Development, meaning that significant disturbance impacts on these features of national importance have potential to occur. More specific information on the location of these confidential features is provided in <b>Technical Appendix 9.2: Confidential Results (EIAR Volume 5)</b> .	Major Adverse
Hen harrier	The recommended disturbance distance for hen harrier is 300 m to 750 m <sup>50</sup> . Two hen harrier territories, one active in 2021, exist within this distance of the Proposed Development. Both are located where landforms block any	N/A

<sup>45</sup> The maximum distance at which disturbance impacts can be expected on a species nest.

<sup>46</sup> Goodship, N.M. and Furness, R.W. (MacArthur Green) Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283.

<sup>47</sup> *Ibid.*

<sup>48</sup> *Ibid.*

<sup>49</sup> *Ibid.*

<sup>50</sup> *Ibid.*

**Table 9.7: Potential for Disturbance Impacts on Schedule 1 Species**

	direct visual or noise disturbance from the Proposed Development. Therefore disturbance impacts on the closest hen harrier territories, features of local importance, are considered to be unlikely. More specific information on the location of these confidential features is provided in <b>Technical Appendix 9.2: Confidential Results (EIAR Volume 5)</b> .	
Merlin	The recommended disturbance distance for merlin is 300 m to 500 m <sup>51</sup> . None of the merlin territories identified during the Breeding Raptor surveys are within this distance of the Proposed Development, meaning that significant disturbance impacts on these features of national importance are not predicted. More specific information on the location of these confidential features is provided in <b>Technical Appendix 9.2: Confidential Results (EIAR Volume 5)</b> .	N/A
Greylag goose	The recommended disturbance distance for greylag goose is 200 m to 600 m <sup>52</sup> . Two confirmed breeding territories are located 80 m and 300 m from the Proposed Development and two possible breeding territories 220 m and 450 m from the Proposed Development, meaning that significant disturbance impacts on these features of regional importance have potential to occur. More specific information on the location of these confidential features is provided in <b>Technical Appendix 9.2: Confidential Results (EIAR Volume 5)</b> .	Major Adverse
Greenshank	The recommended disturbance distance for greenshank is 300 m to 500 m <sup>53</sup> . There were five possible greenshank territories and two confirmed territories within 300 m of the Proposed Development, meaning that significant disturbance impacts on these features of national importance have potential to occur. More specific information on the location of these confidential features is provided in <b>Technical Appendix 9.2: Confidential Results (EIAR Volume 5)</b> .	Major Adverse
Short-eared Owl	The recommended disturbance distance for short-eared owl is 300 m to 500 m <sup>54</sup> . None of the short-eared owl territories identified during the Breeding Raptor surveys are within this distance of the Proposed Development, meaning that significant disturbance impacts on these features of local importance are not predicted. More specific information on the location of these confidential features is provided in <b>Technical Appendix 9.2: Confidential Results (EIAR Volume 5)</b> .	N/A

#### Habitat Loss

9.6.12 There is potential for habitat loss impacts to have an impact on bird species, particularly where the habitat loss occurs within Lewis Peatlands SPA, or the loss is of habitats important to Lewis Peatland SPA species, e.g. blanket bog or heath. Habitat loss is assessed in **Chapter 8: Ecology (EIAR Volume 2)**, in **Table 8.9: Permanent Habitat Loss from Proposed Development During Construction**.

9.6.13 The total areas of dry heath, wet heath, blanket bog and modified bog to be permanently lost is shown below, with the % of each habitat within the Ecology Field Survey Area also shown:

- Dry heath – 0.003 ha (0.02%);
- Wet heath – 0.16 ha (0.02%);
- Blanket bog – 0.35 ha (0.03%); and
- Wet modified bog – 0.09 ha (0.03%).

<sup>51</sup> *Ibid*

<sup>52</sup> *Ibid*

<sup>53</sup> *Ibid*

<sup>54</sup> *Ibid*.



9.6.14 The total areas of dry heath, wet heath, blanket bog and modified bog to be temporarily lost is shown below, with the % of each habitat within the Ecology Field Survey Area also shown:

- Dry heath – 0.79 ha (6.12%);
- Wet heath – 36.68 ha (5.55%);
- Blanket bog – 77.36 ha (7.06%); and
- Wet modified bog – 20.70 ha (7.37%).

9.6.15 All permanent loss is limited to less than 0.05% of each listed habitat and is not considered to be a significant impact. Temporary loss for all habitats listed is over 5% of surveyed area, but this is limited to the footprint of vehicle access to the construction locations. No permanent or temporary tracks would be constructed, instead the use of low ground pressure vehicles and trackway panels in boggy / soft ground areas would reduce any damage to, and compaction of, the ground. The effects from these impacts would be short-term and reversible meaning that effects are not considered to be significant.

### Potential Operational Effects

#### Collision Risk

9.6.16 Once the Proposed Development is constructed and operational it would provide a potential collision risk for birds. Birds are known to collide with OHLs with most collisions resulting in the death of the bird. Collisions can occur for reasons including poor weather conditions resulting in low visibility, from strong wind pushing birds into the OHL or from birds not recognizing the danger and flying into the OHL.

9.6.17 Potential collision risk is assessed qualitatively for OHLs, with the methodology set out in **Technical Appendix 9.1: Ornithology Methodology (EIAR Volume 4)**. For this assessment, any flight of a bird between 5 m and 20 m is considered to be at CRH. The collision risk assessment is set out in **Table 9.8**.

Species	Flights Crossing the Line at CRH	Assessed Flight Activity	Assessed Collision Risk	Justification
Golden eagle	19	Moderate	Moderate	Golden eagle is a large bird with poor agility and manoeuvrability, but, away from the nest area, the species typically spends more time flying at higher altitudes than the Proposed Development. However golden eagles have been known to collide with the existing power lines on Lewis and Harris, with five collisions/electrocutions recorded since 2012 <sup>55</sup> , all of juvenile or subadult birds. The species was the most recorded target species during both VP survey programmes, with a high volume of flights recorded at CRH too. A high flight activity was not considered appropriate as there are defined areas of low flight activity, flight activity is not at a high level along the full Proposed Alignment. The moderate flight activity and poor manoeuvrability suggests a moderate collision risk.
White-tailed eagle	16	Moderate	Moderate	White-tailed eagle is a large bird with poor agility and manoeuvrability. It has one of the lowest avoidance rates of a bird species in relation to impacts from

<sup>55</sup> Pers comms with Robin Reid, formerly of RSPB.

**Table 9.8: Collision Risk Assessment**

				collisions with wind turbines <sup>56</sup> . White-tailed eagles have also been recorded having collided/been electrocuted by power lines on Lewis and Harris, with a juvenile bird found dead in Aline in 2013 <sup>57</sup> . The species was the second most recorded target species during both VP survey programmes, with a high volume of flights recorded at CRH too. A high flight activity was not considered appropriate as there are defined areas of low flight activity, flight activity is not at a high level along the full Proposed Alignment. The moderate flight activity and poor manoeuvrability suggests a moderate collision risk.
Black-throated diver	4	Low	Moderate	Black-throated divers are large birds that have narrow wings and an associated high wing load. This means that they have less ability to take evasive actions to avoid obstacles. They are unable to gain height easily, instead having to fly in wide circles to gain height. Although the flight activity recorded is considered low, this activity was recorded at breeding lochs, some of which are spanned by the Proposed Development. This increases the exposure of the species and the lack of ability to avoid collisions suggests a moderate collision risk.
Red-throated diver	2	Low	Moderate	Red-throated divers are large birds that have narrow wings and an associated high wing load. This means that they have less ability to take evasive actions to avoid obstacles. They are unable to gain height easily, instead having to fly in wide circles to gain height. Although the flight activity recorded is considered low, some of this activity was recorded at breeding lochs, which the Proposed Development runs close to. This increases the exposure of the species and the lack of ability to avoid collisions suggests a moderate collision risk.
Hen harrier	3	Low	Low	When hunting, hen harriers typically fly very low to the ground with their heads facing downwards, known as quartering <sup>58</sup> . This means they are typically recorded flying at less than CRH but are less able to avoid potential collisions. They are very agile, however. During the early breeding season, males skydance <sup>59</sup> as a territorial display. This involves the birds flying up and down repeatedly and would put them at the risk of collision. Flight activity was considered low and due to the agility of the birds a low collision risk is considered appropriate.
Merlin	4	Low	Low	Merlin is a small raptor species that hunt by pursuing small avian prey. They are exceptionally agile/manoeuvrable. They are ambush predators which fly low and grab birds such as skylark or

<sup>56</sup> NatureScot (2018) Avoidance Rates for the Onshore SNH Wind Farm Collision Risk Model.

<sup>57</sup> Pers comms with Robin Reid, formerly of RSPB.

<sup>58</sup> Quartering describes the low hunting flights of owls and harriers where they fly low to the ground very slowly looking for prey.

<sup>59</sup> Skydancing describes hen harrier courtship behaviour, where the male and female fly in unison and mirror behaviours.

**Table 9.8: Collision Risk Assessment**

				meadow pipit from on or close to the ground. Flight activity was considered low and due to the agility of the birds a low collision risk is considered appropriate.
Greylag goose	27	Moderate	Moderate	Greylag geese are fast-flying birds that make daily commutes between foraging and roosting areas. They hold their heads facing forward in flight, which is better for identifying obstacles, but are limited in how they can avoid collisions due to their speed and weight. Flights are typically undertaken at low heights, flying just high enough to clear trees or other vegetation. As such, flights are typically at the height of the wires. Flight activity was considered moderate and due to the lack of agility from the birds a moderate collision risk is considered appropriate.
Dunlin	7	Low	Low	Dunlin are very small, agile birds. They sometimes fly during their displays. They often fly in flocks during the migration periods which could make them more susceptible to collisions. Flight activity was considered low and due to their agility collision risk is also considered low.
Golden plover	38	Moderate	Low	Golden plover are small, agile birds. They often fly in flocks during the migration periods which could make them more susceptible to collisions. Flight activity was considered moderate but due to their agility collision risk is considered low.
Greenshank	9	Low	Low	Greenshank are small, agile birds. They do not often fly in flocks so are less susceptible to collisions. Flight activity was considered low and due to their agility collision risk is also considered low.
Great skua	11	Low	Low	Great skua are fast flying birds that are built to harass and chase other species (such as gannets) into dropping any food they are carrying. They are capable of diving to catch food in mid-air to prevent other birds from getting the meal. They hold their head upright in flight so are more able to spot potential hazards. Flight activity was considered low and due to their agility collision risk is also considered low.

9.6.18 The collision risk is assessed to be Moderate or above and there is potential for **significant adverse** collision risk effects that require mitigation.

## 9.7 Mitigation

### Mitigation During Construction

#### *Pre-construction Surveys*

9.7.1 Depending on when the felling work is due to be undertaken there is potential for disturbance or destruction impacts on bird nests. Currently, the felling work is due to be undertaken between February and May 2024 therefore pre-construction surveys for nesting birds are required to avoid destroying or disturbing nests. These surveys will cover areas where felling is required and a buffer of 50 m and would seek to identify the locations of

any active nests within, or immediately adjacent to the working and felling areas along the Proposed Development. All pre-construction bird surveys should extend a sufficient distance out from the Proposed Development to identify any nest sites which may be within the disturbance range of the species in question. For example, pre-construction checks for general nesting birds do not need to extend more than 50 m beyond the development footprint, while surveys for rare and vulnerable raptors should extend out to between 500 m and 750 m. In the event that the construction programme changes, and felling work is still carried out between January and August, pre-construction surveys for nesting birds are required. If felling works are carried out between September and December these surveys would not be required.

- 9.7.2 For the entire overhead line route, surveys for rare and vulnerable breeding raptors and divers, i.e. hen harrier, merlin, short-eared owl, black-throated diver and red-throated diver will be conducted in the year prior to works. The surveys should focus on confirmed or probable territories, identified in the survey work already undertaken and should be expanded to include other areas of potentially suitable habitat. The surveys should seek to locate any new nest sites and advise the Applicant and their Principal Contractor of required mitigation measures in line with the Bird SPP. These surveys should be undertaken in the breeding season preceding construction commencing and should be undertaken following consultation with LHRSG.
- 9.7.3 In the event that any confirmed, or suspected active nests are identified within range of potential disturbance, a works exclusion zone will be established around the nest site to a distance as set out in the Bird SPP and as advised by the ECoW. Works will not be permitted to commence within the exclusion zone until nesting has been completed and the young have fledged, or the ECoW deems, through monitoring each stage of the breeding attempt, that the extent of the exclusion zone may be reduced.

#### Monitoring

- 9.7.4 Construction phase monitoring would be carried out by the ECoW, to ensure compliance with environmental legislation and effective delivery of mitigation measures (and licence conditions) set out in the generic and works-specific SPP. This would include monitoring any potential breeding raptor nests that could be impacted by the Proposed Development, e.g. hen harrier. Additional mitigation measures would be enacted if deemed necessary as a result of monitoring.

#### Mitigation During Operation

- 9.7.5 There is potential for the Proposed Development to result in significant collision risk impacts on golden eagle, white-tailed eagle, black-throated diver, red-throated diver and greylag goose. This would be mitigated by installing flight diverters on the Proposed Development which are designed to make the wires more visible and reduce the likelihood of a collision. Studies have shown that by marking wires, collision risk can be reduced between 60% and 97%<sup>60 61 62 63</sup>.
- 9.7.6 Line marking locations have been chosen by reviewing flight maps for those species for which a moderate collision risk is predicted. In particular it focusses on lochs and lochans where black-throated and red-throated diver and greylag goose flights were recorded into or out of the waterbody. Line marking is proposed for the sections of powerline described in **Table 9.9**.

<sup>60</sup> Alonso, J.C., Alonso, J.A. and Munoz-Pulido, R. (1994) Mitigation of bird collisions with transmission lines through groundwire marking. *Biological Conservation* 67 (2), p. 129-134.

<sup>61</sup> Guyonne, F. E. and Ferrer, M. (1998) Rate of Bird Collision with Power Lines: Effects of Conductor-Marking and Static Wire-Marking. *Journal of Field Ornithology* 69 (1) p. 8-17.

<sup>62</sup> Frost, D (2008) The use of 'flight diverters' reduces mute swan *Cygnus olor* collision with power lines at Abberton Reservoir, Essex, England. *Conservation Evidence* 5, p. 83-91.

<sup>63</sup> Barrientos, R., Alonso, J. C., Ponce, C. and Palacin, C. (2011) Meta-Analysis of the Effectiveness of Marked Wire in Reducing Avian Collisions with Power Lines. *Conservation Biology*. 25 (5), p. 893-903.

**Table 9.9: Proposed Line Marking**

Section	Pole Numbers	Location	Length
1	1000BE6 to 1000BA4	South of Stornoway	5.84 km
2	1000B7E to 1000B47	Laxay	4.86 km
3	1000B2C to 1000ABE	Balallan to Arivruaich	9.49 km
4	1000983 to 100094B	North of Harris Substation	4.94 km

9.7.7 The type and distribution of bird diverters would be agreed prior to their installation with NatureScot. The detailed design would consider NatureScot Guidance<sup>64</sup>. Diverters can take many forms, from spiralled wire to reflective discs, they are recommended to be as large as possible and of contrasting colours to improve visibility.

9.7.8 Flight diverters would be checked as part of routine maintenance visits to ensure they are still present. This would be undertaken every spring, after the period of worse weather in the winter. Line marker surveys could be undertaken alongside other operational maintenance surveys with the aim to replace any that are found to be missing to maintain their effectiveness. If diverters are missing, these would be replaced to maintain their effectiveness.

## 9.8 Residual Effects

### Residual Construction Effects

9.8.1 Through the implementation of pre-construction surveys, checks and on-going monitoring during construction, the residual effects on breeding birds through nest damage/destruction or disturbance are anticipated to be of **Minor Adverse** significance (i.e. not significant).

### Residual Operational Effects

9.8.2 As a result of the implementation of line marking, the residual effects on golden eagle, white-tailed eagle, black-throated diver, red-throated diver and greylag goose through collision risk is anticipated to be **Minor Adverse** (i.e. not significant).

## 9.9 Cumulative Effects

9.9.1 Cumulative effects are considered to include both the total effects resulting from the Proposed Development in combination with other similar Proposed Developments (past, present and reasonably foreseeable), and the additional contribution of the Proposed Development to the total cumulative effects taking account of other similar Proposed Developments. As such, the aim is to identify any likely significant effects associated with the combination or addition of the Proposed Development with the cumulative baseline. Environmental statements for infrastructure projects on Lewis and Harris are presented below. Developments for which no data could be reviewed are listed below but have been left out of the assessment. The absence of data for some cumulative developments is not considered to be a significant limitation on this assessment. The key ornithological issues for development in the areas of Lewis and Harris crossed by the Proposed Development have been identified and are fully assessed in this section. Based on our professional judgement, specialist local knowledge of the area and the robust and precautionary approach taken in this assessment, we consider it to be unlikely that potentially significant cumulative effects have been overlooked.

9.9.2 The text below describes where there is potential for cumulative impacts to exist between developments. An assessment is summarised in **Table 9.10** which details whether cumulative impacts are predicted or not.

<sup>64</sup> Assessment and mitigation of impacts of power lines and guyed meteorological masts on birds (2016) Scottish Natural Heritage (now NatureScot) Guidance series.

## Operational

### *Arnish Moor*

- 9.9.3 Arnish Moor is a three turbine wind farm that lies approximately 1.2 km southeast of the Proposed Development. Insufficient information was available on any significant environmental effects, however survey data from the Proposed Development suggests that Arnish Moor could result in disturbance and collision risk impacts on golden eagle, white-tailed eagle, black-throated diver, red-throated diver and merlin. Therefore there is potential for significant cumulative impacts between Arnish Moor and the Proposed Development.

### *Lemreway Wind Turbine*

- 9.9.4 Lemreway Wind Turbine is a single turbine that lies approximately 9.6 km south of the Proposed Development. Insufficient information was available on any significant environmental effects, and the turbine lies outside of the Ornithology Field Survey Area so was not covered by field surveys. It is assumed that a similar suite of bird species would be present at Lemreway as were recorded within the Ornithology Field Survey Area, but that impacts on the same bird territories would not be possible. Therefore it is not considered to be potential for significant cumulative impacts between Lemreway Wind Turbine and the Proposed Development.

### *Beinn Ghrideag*

- 9.9.5 Beinn Ghrideag is a three turbine wind farm that lies approximately 2.7 km northwest of the Proposed Development. Insufficient information was available on any significant environmental effects, and the turbine lies outside of the Ornithology Field Survey Area so was not covered by field surveys. It is assumed that a similar suite of bird species would be present at Beinn Ghrideag as were recorded within the Ornithology Field Survey Area. Beinn Ghrideag is located approximately 200 m from Lewis Peatlands SPA and is considered to have potential to impact golden eagle, hen harrier and black-throated diver. Therefore there is potential for significant cumulative impacts between Arnish Moor and the Proposed Development.

### *Pentland Road Wind Farm*

- 9.9.6 Pentland Road is a six turbine wind farm that lies approximately 4.7 km northwest of the Proposed Development. Insufficient information was available on any significant environmental effects, and the turbines lie outside of the Ornithology Field Survey Area so were not covered by field surveys. It is assumed that a similar suite of bird species would be present at Pentland Road as were recorded within the Ornithology Field Survey Area. Pentland Road is located within Lewis Peatlands SPA and is considered to have potential to impact golden eagle. Therefore there is potential for significant cumulative impacts between Arnish Moor and the Proposed Development.

### *Creed*

- 9.9.7 Creed Wind Turbine is a single turbine that lies approximately 700 m southeast of the Proposed Development. Insufficient information was available on any significant environmental effects, however survey data from the Proposed Development suggests that Creed could result in disturbance and collision risk impacts on golden eagle, white-tailed eagle, black-throated diver, red-throated diver and hen harrier. Therefore there is potential for significant cumulative impacts between Arnish Moor and the Proposed Development.

### *Bridge Cottages*

- 9.9.8 Bridge Cottages is a single turbine that lies approximately 4.8 km northeast of the Proposed Development. Insufficient information was available on any significant environmental effects, and the turbine lies outside of the Ornithology Field Survey Area so was not covered by field surveys. It is assumed that a similar suite of bird species would be present at Bridge Cottages as were recorded within the Ornithology Field Survey Area, but that impacts on the same bird territories would not be possible. Bridge Cottages lies 460 m from Lewis Peatlands SPA, therefore there is potential for significant cumulative impacts between Bridge Cottages and the Proposed Development.

### *Monan Hill Wind Turbines*

- 9.9.9 Monan Hills is a three turbine wind farm that lies approximately 330 m north of the Proposed Development. Insufficient information was available on any significant environmental effects, however survey data from the Proposed Development suggests that Monan Hills could result in disturbance and collision risk impacts on golden eagle (and North Harris Mountains SPA) and red-throated diver. Therefore there is potential for significant cumulative impacts between Arnish Moor and the Proposed Development.

## **Consented**

### *Stornoway Wind Farm*

- 9.9.10 Stornoway is a 35 turbine wind farm that lies 730 m northwest of the Proposed Development. Significant impacts were assessed for golden eagle, white-tailed eagle, black-throated diver, red-throated diver, hen harrier, greenshank, common tern and whooper swan. The development lies 100 m from Lewis Peatlands SPA at its closest point. Therefore, there is potential for significant cumulative impacts between Stornoway Wind Farm and the Proposed Development.

### *Muaitheabhal Wind Farm*

- 9.9.11 Muaitheabhal is a 33 turbine wind farm that lies 6.7 km southeast of the Proposed Development. The original EIA could not be accessed for this cumulative development, only documents pertaining to supplementary environmental information requests in 2015. Significant impacts were assessed for golden eagle, white-tailed eagle and black-throated diver. Therefore, there is potential for significant cumulative impacts between Muaitheabhal Wind Farm and the Proposed Development.

### *Muaitheabhal East Extension*

- 9.9.12 Muaitheabhal East Extension is a six turbine wind farm that lies 8 km south of the Proposed Development. The original EIA could not be accessed for this cumulative development but based on the EIA for Muaitheabhal significant impacts were assessed for golden eagle, white-tailed eagle and black-throated diver. Therefore, there is potential for significant cumulative impacts between Muaitheabhal East Extension Wind Farm and the Proposed Development.

### *Muaitheabhal South Extension*

- 9.9.13 Muaitheabhal South Extension is a 12 turbine wind farm that lies 7.6 km east of the Proposed Development. The original EIA could not be accessed for this cumulative development but based on the EIA for Muaitheabhal significant impacts were assessed for golden eagle, white-tailed eagle and black-throated diver. Therefore, there is potential for significant cumulative impacts between Muaitheabhal South Extension Wind Farm and the Proposed Development.

### *Beinn Thulabaigh*

- 9.9.14 Beinn Thulabaigh is a single turbine that lies approximately 4.2 km northwest of the Proposed Development. Insufficient information was supplied on any significant environmental effects, and the turbine lies outside of the Ornithology Field Survey Area so was not covered by field surveys. It is assumed that a similar suite of bird species would be present at Beinn Thulabaigh as were recorded within the Ornithology Field Survey Area, but that impacts on the same bird territories would not be possible. Beinn Thulabaigh lies 180 m from Lewis Peatlands SPA; therefore, there is potential for significant cumulative impacts between Beinn Thulabaigh and the Proposed Development.

## **In Planning**

### *Aignish Community Wind Farm*

- 9.9.15 Aignish Community is a two turbine wind farm that lies 400 m northwest of the Proposed Development. The Scoping Report states that the following species would be assessed in the Impact Assessment:

- Golden eagle;
- White-tailed eagle;
- Black-throated diver;
- Red-throated diver;
- Merlin;
- Golden plover;
- Dunlin;
- Greenshank;
- Hen harrier; and
- Peregrine.

9.9.16 There is potential for significant cumulative impacts between Aignish Community and the Proposed Development.

### Cumulative Impact Summary

9.9.17 The above information is summarised in **Table 9.10**, which also sets out the assessed cumulative impacts.

<b>Table 9.10 Cumulative Impact Assessment Summary</b>		
<b>Feature</b>	<b>Developments with Potential Significant Impacts</b>	<b>Assessed Cumulative Impacts</b>
Lewis Peatlands SPA, Ramsar and IBA	Arnish Moor, Beinn Ghrideag, Pentland Road, Creed, Bridge Cottages, Stornoway, Beinn Thulabaigh, Aignish Community.	Most developments are outside of the SPA, with no construction proposed within the SPA. Exceptions being the Proposed Development and Pentland Road Wind Farm. Overall land take within the SPA is very minor and disturbance impacts only affecting fringes of the SPA, with lots of undisturbed habitat deeper in. This impact is further assessed in Technical Appendix 9.3: Habitat Regulations' Appraisal, EIAR Volume 4. No significant cumulative effects are predicted on Lewis Peatlands SPA, Ramsar and IBA.
North Harris Mountains SPA	Monan Hills	No Development inside the SPA from either development. Low collision risk associated with golden eagles from the Proposed Development where it lies closest to the SPA, with the Proposed Development running along the lower ground and eagle activity on the mountains either side. Both developments too far from the SPA for disturbance impacts to be predicted. This impact is further assessed in Technical Appendix 9.3: Habitat Regulations' Appraisal, EIAR Volume 4. No significant cumulative effects are predicted on Lewis Peatlands SPA, Ramsar and IBA.
Golden eagle	Arnish Moor, Beinn Ghrideag, Pentland Road, Creed, Monan Hills, Stornoway, Muaitheabhal, Muaitheabhal East, Muaitheabhal South, Aignish Community.	The Proposed Development is predicted to have a moderate collision risk impact on golden eagle which would be mitigated through the use of line marking. These developments are all wind farms/single turbines which golden eagles have been shown to show avoidance of <sup>65</sup> suggesting displacement would be a bigger issue than collision risk. No significant cumulative impacts are predicted on the golden eagles of Lewis and Harris.
White-tailed eagle	Arnish Moor, Creed, Stornoway, Muaitheabhal, Muaitheabhal East,	The Proposed Development is predicted to have a moderate collision risk impact on white-tailed eagle which would be mitigated through the use of line marking. White-tailed eagle collision risk was highest around Balallan and Arivruaich, a significant distance (~8 km) from the

<sup>65</sup> Walker, D., McGrady, M., McCluskie, A., Madders, M. & McLeod, D.R. (2005) Resident Golden Eagle ranging behaviour before and after construction of a windfarm in Argyll. *Scottish Birds* (2005) 25: 24–40.



**Table 9.10 Cumulative Impact Assessment Summary**

	Muaitheabhal South, Aignish Community.	cumulative developments listed. No significant cumulative impacts are predicted on the white-tailed eagles of Lewis and Harris.
Black-throated diver	Arnish Moor, Beinn Ghrideag, Creed, Stornoway, Muaitheabhal, Muaitheabhal East, Muaitheabhal South, Aignish Community.	The Proposed Development is predicted to have a moderate collision risk impact on black-throated diver which would be mitigated through the use of line marking. There is one possible black-throated diver territory that could be impacted by Arnish Moor, Beinn Ghrideag, Creed, Stornoway and Aignish Community wind farms, as well as the Proposed Development. Black-throated divers' main exposure to collision risk is when flying between lochs, especially at the end of the breeding season when young birds try to find territories. Of all the lochs in this area, the cumulative developments and the Proposed Development would intersect on a small percentage of flight paths between lochs, meaning that significant cumulative collision impacts are unlikely. Construction activities are unlikely to be concurrent also, so significant cumulative disturbance impacts are also unlikely.
Red-throated diver	Arnish Moor, Creed, Monan Hills, Stornoway, Aignish Community.	The Proposed Development is predicted to have a moderate collision risk impact on red-throated diver which would be mitigated through the use of line marking. There is one possible red-throated diver territory that could be impacted by Monan Hills, as well as the Proposed Development. Red-throated divers' main exposure to collision risk is during their daily commute to a larger loch or the sea to feed. Of the territories identified during surveys, there is not considered to be potential for significant cumulative collision risk impacts. There is potential for significant impacts on birds commuting from further inland, where they may need to transit the Proposed Development as well as Arnish Moor, Creed, Stornoway and Aignish Community wind farms. In this area the Proposed Development will be line marked; therefore, no significant collision risk impacts are predicted.
Hen harrier	Beinn Ghrideag, Creed, Stornoway, Aignish Community.	The Proposed Development is not predicted to have significant collision risk or disturbance impacts on hen harriers. Hen harriers typically fly at heights below the rotor swept area of wind turbines, so collision risk is likely to be low for these developments. The Proposed Development is due to be line marked in areas of hen harrier activity as mitigation for other species; therefore, no significant cumulative collision risk is predicted. Construction activities are unlikely to be concurrent also, so significant cumulative disturbance impacts are also unlikely.
Merlin	Arnish Moor, Aignish Community.	The Proposed Development is not predicted to have significant collision risk or disturbance impacts on merlin. There is potential for impacts resulting from Arnish Moor and Aignish Community wind farms, but this is likely limited due to the size of each wind farm (three and two turbines respectively). Disturbance impacts from Arnish Moor wind farm could occur, but this development has been constructed and merlin successfully nested nearby in 2021, suggesting limited disturbance. No significant cumulative impacts are predicted on the merlin of Lewis and Harris.
Peregrine	Aignish Community.	No impacts are predicted on peregrine from the Proposed Development. While their presence was recorded during the surveys for the Proposed Development and for Aignish Community wind farm, no nearby territories are known to exist, and activity levels are low enough to confirm no cumulative impacts are possible.

Whooper swan	Stornoway.	No impacts are predicted on whooper swan from the Proposed Development. There is no potential for cumulative impacts between the two developments.
Dunlin	Aignish Community.	The Proposed development could result in disturbance impacts on dunlin. However the construction of the developments will be staggered so birds have space to move away from any disturbance, and there is extensive undisturbed habitat for birds to utilise. No significant cumulative impacts are predicted on dunlin.
Golden plover	Aignish Community.	The Proposed development could result in disturbance impacts on golden plover. However the construction of the developments will be staggered so birds have space to move away from any disturbance, and there is extensive undisturbed habitat for birds to utilise. No significant cumulative impacts are predicted on golden plover.
Greenshank	Stornoway, Aignish Community.	The Proposed development could result in disturbance impacts on greenshank. However the construction of the developments will be staggered so birds have space to move away from any disturbance, and there is extensive undisturbed habitat for birds to utilise. No significant cumulative impacts are predicted on greenshank.

## 9.10 Summary

- 9.10.1 A programme of desk studies and field surveys were undertaken between 2021 and 2022 to determine the baseline of the Site. Surveys were undertaken following best practice guidance and the assessment was undertaken following CIEEM guidelines. Surveys were undertaken by Ramboll and Stagfire ornithologists. One of the key ornithological constraints is the Lewis Peatlands SPA, Ramsar and IBA which the Proposed Development crosses. Potential disturbance impacts are predicted for black-throated diver, red-throated diver, greylag goose, greenshank and other non-schedule 1 birds including dunlin and golden plover. Collision risk impacts are predicted for golden eagle, white-tailed eagle, black-throated diver, red-throated diver and greylag goose.
- 9.10.2 Disturbance and nest destruction impacts would be mitigated through the use of the GEMP, SPP, pre-construction surveys and monitoring. Collision risk impacts would be mitigated through the use of line marking along key stretches of the Proposed development. **No significant residual impacts or cumulative effects on ornithological features are predicted.**

Likely Significant Effect	Mitigation Proposed	Means of Implementation	Outcome / Residual Effect
<b>Construction</b>			
Disturbance to bird nests (including potential Schedule 1 birds)	<ul style="list-style-type: none"> <li>Timing of works;</li> <li>Pre-construction surveys; and</li> <li>Exclusion zones.</li> </ul>	Set out in the Bird SPP	Not significant
<b>Operation</b>			
Collision risk	<ul style="list-style-type: none"> <li>Line marking.</li> </ul>	Post-construction checks to confirm flight diverters remain in place.	Not significant.
<b>Cumulative Construction</b>			
None	N/A	N/A	N/A
<b>Cumulative Operation</b>			

**Table 9.11: Summary of Potential Significant Effects of the Proposed Development**

None	N/A	N/A	N/A
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## 10. HYDROLOGY, HYDROGEOLOGY, GEOLOGY AND SOILS

### 10.1 Introduction

10.1.1 This chapter assesses the potential effects on hydrology, hydrogeology, geology and soils associated with the construction, operation and decommissioning of the Proposed Development. This chapter (and its associated Figures and Appendices) is not intended to be read as a standalone assessment and reference should be made to the introductory chapters of this EIAR (**Volume 2, Chapters 1-5**).

10.1.2 The assessment has been carried out by Briony McIntosh (Senior EIA Consultant) who has over five years' experience undertaking hydrological assessments. This chapter has been reviewed by Chris Day (Senior Consultant) who has over 14 years' experience in a broad range of EIA assessments as a hydrologist.

10.1.3 The geology, soils and peat assessment has been undertaken and reviewed by Jeff Turner, a Chartered Environmentalist and member of the Society for the Environment, Institute of Environmental Science, and Institute of Environmental Management and Assessment (CEnv, MEnvSc, PIEMA, BSc (Hons)). Jeff has over 21 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 electrical transmission infrastructure on peat, including the identification of suitable mitigation measures to minimise the effects from development.

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

- Volume 3a: Figures
  - Figure 10.1: Surface Water Features;
  - Figure 10.2: Drinking Water Protected Areas;
  - Figure 10.3: Bedrock Geology;
  - Figure 10.4: Superficial Geology;
  - Figure 10.5: Hydrogeology;
  - Figure 10.6: Carbon and Peatland Mapping 2016;
  - Figure 10.7: Peat Depth Plan;
  - Figure 10.8: Habitats with the Potential to be Groundwater Dependent Terrestrial Ecosystems - National Vegetation Classification; and
  - Figure 10.9: Private Water Supplies.
- Volume 4: Technical Appendices
  - Technical Appendix 10.1: Peat Depth Results Report;
  - Technical Appendix 10.2: Outline Peat Management Plan;
  - Technical Appendix 10.3: Peat Landslide Hazard Risk Assessment;
  - Technical Appendix 10.4: Watercourse Crossing Assessment;
  - Technical Appendix 10.5: Groundwater Dependent Terrestrial Ecosystems Assessment; and
  - Technical Appendix 10.6: Private Water Supply Assessment.

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

### 10.2 Assessment Methodology

#### Scope of Assessment

10.2.1 This chapter considers effects on the water environment taking account of the hydrological and hydrogeological characteristics of the areas in which the Proposed Development is located, as well as effects on geology and soils. In particular, the chapter considers the likely effects on:

- water quality (including both surface water and groundwater bodies) as a result of sedimentation and chemical pollution;
- flood risk and the potential for direct and indirect effects of the Proposed Development on flood risk;
- flow regimes and the geomorphological characteristics of watercourses as a result of proposed watercourse crossings (assessed further in **Technical Appendix 10.4: Watercourse Crossing Assessment, EIAR Volume 4**);
- any alterations to regimes of water supplying Private Water Supplies (PWS) in the Site or with potential hydrological connection to the Site (assessed further in **Technical Appendix 10.6: Private Water Supply Assessment, EIAR Volume 4**);
- the potential for the Proposed Development to impact hydrology or hydrogeology with secondary effects on Groundwater Dependent Terrestrial Ecosystems (GWDTE) (assessed further in **Technical Appendix 10.5: GWDTE Assessment, EIAR Volume 4**). The direct ecology or biodiversity effects (e.g. on sensitive habitats) are captured in **Chapter 8: Ecology (EIAR Volume 2)**; and
- potential effects from the construction of the Proposed Development on peat and carbon rich soils. These include findings from field work (described in **Technical Appendix 10.1: Peat Survey Results Report**), discussion of peat management proposals (described in **Technical Appendix 10.2: Outline PMP**), and also consideration of potential peat landslide and hazard risks (as described in **Technical Appendix 10.3: PLHRA**).

10.2.2 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 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 'worst case scenario'.

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

10.2.4 The scope of the assessment has been informed by consultation responses summarised in **Table 10.1** and the following guidelines/policies:

*National Legislation and Policy*

- Water Environment and Water Services (Scotland) Act 2003;
- Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) (CAR);
- The Water Environment (Miscellaneous) (Scotland) Regulations 2017;
- Flood Risk Management (Scotland) Act 2009;
- The Water Intended for Human Consumption (Private Supplies) (Scotland) Regulations 2017;
- The Public and Private Water Supplies (Miscellaneous Amendments) (Scotland) Regulations 2015;
- The Public Water Supplies (Scotland) Regulations 2014 (as amended 2017); and
- The Water Environment (Drinking Water Protected Areas) (Scotland) Order 2013.

*Guidance and Advice*

- CIRIA C736F Containment systems for the prevention of pollution (June 2014);
- Pollution Prevention Guidelines (PPG) 1: Understanding your environmental responsibilities - good environmental practices (July 2013);
- Guidance for Pollution Prevention Guidelines (GPP) 2: Above ground oil storage tanks (January 2018);
- GPP 4: Treatment and disposal of wastewater where there is no connection to the public foul sewer (November 2017);
- GPP 5: Works and maintenance in or near water (January 2017);

- PPG 6: Working at construction and demolition sites (2012);
- GPP 13 Vehicle washing and cleaning (April 2017);
- GPP 21: Pollution incident response planning (July 2017);
- PPG 22: Incident response - dealing with spills (October 2018);
- Planning Advice Note (PAN) 79: Water and Drainage (September 2006);
- LUPS-DP-GU2a: Development Plan Guidance on Flood Risk (2018);
- LUPS-GU19: Planning advice on wastewater drainage (2011);
- LUPS-GU31: Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems, Version 3 (September 2017);
- WAT-SG-25: Good Practice Guide - River Crossings (November 2010);
- WAT-SG-26: Good Practice Guide - Sediment Management (September 2010);
- WAT-SG-29: Good Practice Guide - Temporary Construction Methods (March 2009);
- WAT-SG-75: Sector Specific Guidance: Construction Sites;
- WAT-PS-06-02: Culverting of Watercourses (June 2015);
- SEPA (2015), CAR - A Practical Guide, Version 8.4 (October 2019);
- Scottish Government (2012) River Crossings and Migratory Fish;
- Scottish Government (2017) Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Energy Generation Developments;
- Scottish Government (2020) Assessment of peat volumes, reuse of excavated peat and minimisation of waste: guidance; and
- Scottish Government, Scottish Natural Heritage, SEPA (2017) Peatland Survey. Guidance on developments on peatland.

### Extent of the Study Area

10.2.5 The hydrological desk study area covers a 500 m buffer around the overhead line (OHL) alignment as well as watercourses and PWS with downstream hydrological connectivity to the Site, as certain effects could extend across a larger catchment area. The hydrological field study area was limited to the extent of the proposed secondary access tracks and roads.

10.2.6 The study area for geology and soils, including peat, has been limited to the Site, defined as the area of land occupied by the Proposed Development, including the OHL, its operational corridor and the area required to accommodate ancillary works.

### Consultation Undertaken to Date

10.2.7 Consultation undertaken to date mainly pertains to the EIA Scoping Report. Scoping responses received at the time of writing that are relevant to this chapter are captured in **Table 10.1**. Further information can be found in **Appendix 4.3: Scoping Consultation Register (EIAR Volume 4)**.

<b>Table 10-1: Scoping responses and other consultation of relevance</b>			
<b>Organisation</b>	<b>Type of Consultation &amp; Date</b>	<b>Response</b>	<b>How response has been considered</b>
Energy Consents Unit (ECU)	Scoping Opinion 11/07/22	Scottish Water provided information on whether there are any drinking water protected areas on which the development could have any significant effect. Scottish Ministers request that the	The Proposed Development passes through two Scottish Government Drinking Water Protected Areas (DWPA). Mitigation to protected water

**Table 10-1: Scoping responses and other consultation of relevance**

		company contacts Scottish Water and makes further enquires to confirm whether there are any Scottish Water assets which may be affected by the development, and includes details in the EIA report of any relevant mitigation measures to be provided.	quality and quantity in these areas is set out in Section 10.8 of this chapter.
		Scottish Ministers request that the Company investigates the presence of any private water supplies which may be impacted by the development. The EIA report should include details of any supplies identified by this investigation, and if any supplies are identified, the Company should provide an assessment of the potential impacts, risks, and any mitigation which would be provided.	PWS are discussed in section 10.5.15 of this chapter and shown in <b>Figure 10.9 (EIAR Volume 3a)</b> .  PWS are assessed further in <b>Technical Appendix 10.6: Private Water Supply Assessment (EIAR Volume 4)</b> .
		Scottish Ministers consider that where there is a demonstrable requirement for peat landslide hazard and risk assessment (PLHRA), the assessment should be undertaken as part of the EIA process to provide Ministers with a clear understanding of whether the risks are acceptable and capable of being controlled by mitigation measures. The Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments (Second Edition), should be followed in the preparation of the EIA report, which should contain such an assessment and details of mitigation measures. Where a PLHRA is not required clear justification for not carrying out such a risk assessment is required.	A PLHRA has been undertaken and is included in <b>Technical Appendix 10.3: Peat Landslide Hazard Risk Assessment (EIAR Volume 4)</b> .
Comhairle nan Eilean Siar (CnES)	Scoping Opinion 06/07/22	Regard should be had to the generic Scottish Water advice for development being undertaken in or close to Drinking Water Protected Areas.	The Appointed Contractor would be responsible for reviewing all advice in detail when compiling the final Construction Environmental Management Plan (CEMP).
		Based on the scoping report I am satisfied with Private Water Supply (PWS) being scoped out of the EIA and satisfied re Private Water Supply (PWS).	PWS were scoped in and have been discussed in section 10.7.22 of this chapter and assessed further in <b>Technical Appendix 10.6: Private Water Supply Assessment (EIAR Volume 4)</b> .
		CnES does not hold any flood risk information relevant to the EIA.	Noted.
		CnES is satisfied with the proposed approach for baseline collection,	Noted.

**Table 10-1: Scoping responses and other consultation of relevance**

		prediction and significance assessment for flood risk.	
		CnES is in agreement with the list of issues to be scoped with regards to flood risk.	Noted.
		SEPA flood maps indicate small pockets of potential surface water flooding on site. Policy EI7: Development proposals should avoid areas susceptible to flooding and promote sustainable flood management.	Surface water flood risk is discussed in section 10.2.11. Micrositing of infrastructure outwith areas of potential flood risk would be considered at detailed design. The Proposed Development incorporates the use of SuDS to manage potential flood risk.
		It is noted that a Sustainable Drainage System is proposed for the development.	Details of construction phase SuDS would be included in the Pollution Prevention Plans (PPP) and final CEMP that would be compiled by the Appointed Contractor. A full SuDS solution would be developed prior to construction.
		Development proposals should avoid adverse impact on the water environment. There are two Drinking water Protection Areas (DWPS) on the route of the proposed development at Bowglass DWPA and at Maaruig DWPA, the EIA must demonstrate that these will be protected, and any potential effects of contamination or pollution minimised and mitigated against. A minimum buffer strip of six metres should be incorporated between any water body and proposed development to enable access and maintenance all year round.	Mitigation to protect water quality and quantity are set out on section 10.8 of this chapter, and the need for buffer strips noted in section 10.8.13.  Pollutant and sediment control measures would be detailed in the final CEMP and PPP that would be compiled by the Appointed Contractor.
		We note that the Hydrology and Hydrogeology assessment will include a Private Water Supply Risk Assessment as an appendix which will identify private water supplies or other abstractions within 250 m of pole locations, or 100 m of temporary access tracks, this report must demonstrate how abstractions will be protected in accordance with SEPA guidance (LUPS-GU31). The proposal should demonstrate no significant effects both during construction and after completion on the water quality in groundwater, adjacent watercourses or areas downstream; existing groundwater abstractions within 250 m; and water quality and natural flow patterns and	<b>Technical Appendix 10.6: Private Water Supply Assessment (EIAR Volume 4)</b> has assessed in further detail all PWS within 250 m of, or in hydrological connectivity to the Site.  Section 10.9 of this chapter has assessed the residual effects on PWS, and if the contractor identifies a potential risk to PWS, pre and post construction monitoring of PWS would be conducted.



**Table 10-1: Scoping responses and other consultation of relevance**

		<p>sediment transport processes in all water bodies.</p>	
		<p>Development should be designed to minimise adverse impacts on soils caused by ground disturbance, compaction or excavation. Developers should assess the likely effects associated with any development work on soils, particularly machair soil, peat, or other carbon-rich soils and associated vegetation, and aim to mitigate any adverse impacts arising. It is recognised that while a significant quantity of peat is proposed to be excavated, the proposal intends to limit the scope for significant adverse effects through reuse and site restoration and that a Peat Landslide Hazard Risk Assessment (PHLRA) will be carried out and a Peat Management Plan (PMP) will be required be provided should any deemed planning consent be given. Provision of a CEMP. Appointment of a ECoW will also be a requirement from the start of the construction phase and throughout the project to manage storage and reinstatement of soil and peat.</p>	<p>Noted. These factors have been considered through the design and assessment and are included in <b>EIAR Chapter 2: Description of Proposed Development (EIAR Volume 2), Technical Appendix 2.2: General Environmental Management Plans (GEMP), Technical Appendix 10.2: Outline Peat Management Plan, Technical Appendix 10.3: Peat Landslide Hazard Risk Assessment (EIAR Volume 4)</b>.  A detailed CEMP will be completed by the appointed Contractor post-consent, which will also include the appointment of an Ecological Clerk of Works (EcoW).</p>
<p>Scottish Environment Protection Agency (SEPA)</p>	<p>Scoping Opinion 17/06/22</p>	<p>Avoiding good quality or rare GWDTE habitats and minimising impacts on other GWDTE habitats must be addressed into the EIAR.</p>	<p>Impacts to GWDTE are considered in detail in <b>Technical Appendix 10.5: Groundwater Dependent Terrestrial Ecosystem Assessment (EIAR Volume 4)</b>. In addition, direct impacts to sensitive habitats are covered in <b>Chapter 8: Ecology (EIAR Volume 2)</b>.</p>
		<p>Avoiding impacts on watercourses and other water features by ensuring suitable buffers and using best practice design crossings must be addressed in the EIAR.</p>	<p>Whilst the preferred 50 m buffer is acknowledged, it has not been possible to avoid a 50 m buffer along the entire Proposed Development. This is a result of engineering constraints including the requirement to achieve the required clearances on the OHL spans.  The majority of poles have been located outwith a 30 m buffer of watercourses, and many of the water features are smaller burns. Based on previous experience, a 30 m buffer is considered a suitable distance to avoid impacts on watercourses and lochs.</p>

**Table 10-1: Scoping responses and other consultation of relevance**

			Design of watercourse crossings would be the responsibility of the Appointed Contractor and would adhere to the appropriate CIRIA and SEPA guidance as set out in <b>Technical Appendix 10.4: Watercourse Crossing Assessment (EIAR Volume 4)</b> and section 10.2.12 of this chapter.
		The site layout must be designed to avoid impacts upon the water environment. Where activities such as watercourse crossings, watercourse diversions or other engineering activities in or impacting on the water environment cannot be avoided then the submission must include justification of this and a map showing all proposed temporary or permanent infrastructure overlain with all lochs and watercourses.	The interaction of the Proposed Development with the water environment is shown in <b>Figure 10.1: Surface Water Features (EIAR Volume 3a)</b> . Watercourse crossing locations are discussed further in <b>Technical Appendix 10.4: Watercourse Crossing Assessment</b> and shown in <b>Figure 10.4.1 (EIAR Volume 4)</b> .
		All proposed temporary or permanent infrastructure overlain with all lochs and watercourses.	Shown in <b>Figure 10.1: Surface Water Features (EIAR Volume 3a)</b> .
		A minimum buffer of 50 m around each loch or watercourse. If this minimum buffer cannot be achieved each breach must be numbered on a plan with an associated photograph of the location, dimensions of the loch or watercourse and drawings of what is proposed in terms of engineering works.	Whilst the preferred 50 m buffer is acknowledged, it has not been possible to avoid a 50 m buffer along the entire Proposed Development. This is a result of engineering constraints which include constraints to achieve the required clearances on the OHL spans.  The majority of poles have been located outwith a 30 m buffer of watercourses, and many of the water features are smaller burns. Based on previous experience, a 30 m buffer is considered a suitable distance to avoid impacts on watercourses and lochs.
		Detailed layout of all proposed mitigation including all cut off drains, location, number and size of settlement ponds.	The Appointed Contractor would be responsible for drafting detailed drainage plans prior to construction.
		If water abstractions or dewatering are proposed, a table of volumes and timings of groundwater abstractions and related mitigation measures must be provided.	The Appointed Contractor would be responsible for providing this information to SEPA prior to construction.
		Watercourse crossings must be designed to accommodate the 0.5% Annual Exceedance Probability (AEP) flows, or	Design of watercourse crossings would be the responsibility of the Appointed Contractor and would

**Table 10-1: Scoping responses and other consultation of relevance**

		<p>information provided to justify smaller structures. If it is thought that the development could result in an increased risk of flooding to a nearby receptor then a Flood Risk Assessment must be submitted in support of the planning application.</p>	<p>adhere to the appropriate CIRIA and SEPA guidance as set out in <b>Technical Appendix 10.4: Watercourse Crossing Assessment (EIAR Volume 4)</b> and section 10.2.12 of this chapter.</p>
		<p>A map demonstrating that all GWDTE are outwith a 100 m radius of all excavations shallower than 1 m and outwith 250 m of all excavations deeper than 1 m and proposed groundwater abstractions. If micro-siting is to be considered as a mitigation measure the distance of survey needs to be extended by the proposed maximum extent of micro-siting.</p> <p>The survey needs to extend beyond the site boundary where the distances require it.</p> <p>If the minimum buffers above cannot be achieved, a detailed site specific qualitative and/or quantitative risk assessment will be required. We are likely to seek conditions securing appropriate mitigation for all GWDTE affected.</p>	<p>A map of potential GWDTE based on National Vegetation Classification (NVC) is shown in <b>Figure 10.8: Groundwater Dependent Terrestrial Ecosystems - National Vegetation Classification (EIAR Volume 3a)</b>.</p> <p>A detailed assessment of GWDTE has been provided in <b>Technical Appendix 10.5: Groundwater Dependent Terrestrial Ecosystems Assessment (EIAR Volume 4)</b>. The Appointed Contractor would be responsible for undertaking a pre-construction detailed site specific risk assessment of any sensitive habitats and supplying this to SEPA. The Appointed Contractor would also be responsible for setting out any proposed mitigation in consultation with SEPA.</p>
		<p>Excavations and other construction works can disrupt groundwater flow and impact on existing groundwater abstractions. The submission must include:</p> <p>A map demonstrating that all existing groundwater abstractions are outwith a 100 m radius of all excavations shallower than 1 m and outwith 250 m of all excavations deeper than 1 m and proposed groundwater abstractions. If micro-siting is to be considered as a mitigation measure the distance of survey needs to be extended by the proposed maximum extent of micro-siting. The survey needs to extend beyond the site boundary where the distances require it.</p> <p>If the minimum buffers above cannot be achieved, a detailed site specific qualitative and/or quantitative risk assessment will be required. We are likely to seek conditions securing</p>	<p>PWS locations are shown in <b>Figure 10.9: Private Water Supplies (EIAR Volume 3a)</b>.</p> <p>A detailed assessment of PWS have been provided in <b>Technical Appendix 10.6: Private Water Supply Assessment (EIAR Volume 4)</b>.</p> <p>The Appointed Contractor would be responsible for undertaking detailed pre-construction PWS surveys, and implementing mitigation set out in section 10.8 of this chapter and <b>Technical Appendix 10.6: Private Water Supply Assessment (EIAR Volume 4)</b>.</p>

**Table 10-1: Scoping responses and other consultation of relevance**

		appropriate mitigation for all existing groundwater abstractions affected.	
		Minimising impacts on peat and peatland must be addressed in the EIAR.	The layout of the Proposed Development has, as far as possible, been designed to avoid habitats of highest ecological importance and highest sensitivity to impacts as detailed in <b>Chapter 2: Description of Proposed Development (EIAR Volume 2)</b> . This includes priority peatland habitat. Mitigation measures are discussed in section 10.8 of this chapter and <b>Technical Appendix 10.2 Outline Peat Management Plan (OPMP) (EIAR Volume 4)</b> .
		The planning submission must a) demonstrate how the layout has been designed to minimise disturbance of peat and consequential release of CO2 and b) outline the preventative/mitigation measures to avoid significant drying or oxidation of peat through, for example, the construction of access tracks, drainage channels, cable trenches, or the storage and re-use of excavated peat. There is often less environmental impact from localised temporary storage and reuse rather than movement to large central peat storage areas.	Noted. This has been documented as part of <b>Chapter 2: Description of Proposed Development (EIAR Volume 2)</b> and this chapter where practicable. It should be noted that the alignment design was mature prior to commencement of peat surveys however, a two stage peat survey was used to allow re-siting/micro-siting of infrastructure.
Scottish Water	Scoping Opinion 27/05/22	Scottish Water has no objection to this planning application; however, the applicant should be aware that this does not confirm that the proposed development can currently be serviced.	Noted.
		Scottish Water has carried out a capacity review and can confirm there is currently sufficient capacity in the North Lochs Water Treatment Works to service your development. However, please note that further investigations may be required to be carried out once a formal application has been submitted.	The Appointed Contractor would be responsible for detailed drainage design and liaising with Scottish Water on the design.
		There is currently sufficient capacity for a foul only connection in the Balallan Waste Water Treatment Works to service your development. However, please note that further investigations may be required to be carried out once a formal application has been submitted.	The Appointed Contractor would be responsible for detailed drainage design and liaising with Scottish Water on the design.

**Table 10-1: Scoping responses and other consultation of relevance**

		<p>A review of our records indicates that there are no Scottish Water drinking water catchments or water abstraction sources, which are designated as Drinking Water Protected Areas under the Water Framework Directive, in the area that may be affected by the proposed activity.</p>	<p>The Scottish Government DWPA mapping and Comhairie nan Eilean Siar (CEnS) identified there are two DWPAs on the route of the Proposed Development at Bowglass and Maaruig. These have been considered in this chapter.</p>
		<p>For reasons of sustainability and to protect our customers from potential future sewer flooding, Scottish Water will not accept any surface water connections into our combined sewer system.</p> <p>There may be limited exceptional circumstances where we would allow such a connection for brownfield sites only, however this will require significant justification from the customer taking account of various factors including legal, physical, and technical challenges.</p> <p>In order to avoid costs and delays where a surface water discharge to our combined sewer system is anticipated, the developer should contact Scottish Water at the earliest opportunity with strong evidence to support the intended drainage plan prior to making a connection request. We will assess this evidence in a robust manner and provide a decision that reflects the best option from environmental and customer perspectives.</p>	<p>The Appointed Contractor would be responsible for detailed drainage design and should take this into consideration.</p>
		<p>All proposed developments require to submit a Pre-Development Enquiry (PDE) Form to be submitted directly to Scottish Water via our Customer Portal prior to any formal Technical Application being submitted. This will allow us to fully appraise the proposals.</p>	<p>The Appointed Contractor would be responsible for detailed drainage design and submitting any applications to Scottish Water.</p>

## Effects Scoped Out

### Flood Risk

- 10.2.8 The Site is in proximity to the following watercourses (from Harris to Lewis) which are indicated to have a High probability (1 in 10 year, or 10% Annual Exceedance Probability (AEP)) of flooding: Abhainn Horsacleit; Skeaudale River; Abhainn Ceann an Ora; Abhainn Sgaladail; Vigadaile River; Abhainn Ruadh; Abhainn Mor Tarabhaigh; River Laxay; Abhainn Eallaidh; and Abhainn Ghlas. In addition, the Site is in close proximity to the indicative flood extent of several lochs.
- 10.2.9 The Proposed Development would cross a number of smaller watercourses. The SEPA flood mapping does not include watercourses with a catchment area less than 3 km<sup>2</sup> therefore the flood extents of smaller watercourses are unknown.

10.2.10 The flood extents are primarily confined to the land immediately adjacent to the watercourses. The Proposed Development has, where possible, located poles outwith a 30 m buffer of watercourses and once installed, would not be vulnerable to flood waters. A further detailed assessment of potential vulnerability to flood risk has therefore been scoped out of further assessment. The poles are also not anticipated to increase the risk of downstream flooding as they do not greatly increase the volume of impermeable surface within the Site.

10.2.11 The Site is not assessed to be at risk of flooding from the sea. Areas assessed to be at risk of surface water flooding are present along the Site, however, areas of surface water flood risk identified on SEPA online mapping are indicative of very localised accumulation of surface water and do not present a significant flood risk, such that further detailed flood risk assessment is not considered to be required.

10.2.12 Detailed assessment of potential flow rates at proposed watercourse crossing locations would be carried out by the Appointed Contractor at the detailed design stage. All watercourse crossings would be designed and installed in compliance with the requirements of *The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (CAR) as amended*. The design of watercourse crossings would also take account of the future 'with climate change' baseline, and, to avoid altering the flow regime, would be sized for a 1 in 200 year (0.5% AEP) plus climate change flood event. Detailed flow rate calculations have not been carried out within this assessment.

10.2.13 The Appointed Contractor at the detailed design stage would be responsible for designing site drainage such that runoff rates are maintained equivalent to the pre-development greenfield situation.

### 10.3 Method of Baseline Data Collection

#### Desk Study

10.3.1 The methodology for baseline characterisation is set out as follows:

- describe surface water hydrology, including watercourses, springs and lochs;
- describe the geology, including bedrock and superficial deposits;
- describe the hydrogeological conditions;
- identify any habitats with the potential to be groundwater dependent;
- identify any private water supplies; and
- collect soil, geological and hydrological information.

10.3.2 Published information consulted to determine the baseline conditions include:

- Ordnance Survey (OS) 1:10,000 and 1:50,000 mapping;
- 5 m Digital Terrain Model (DTM) data;
- Aerial imagery (ESRI world imagery);
- British Geological Survey (BGS) Geology of Britain Viewer<sup>1</sup> for superficial and bedrock;
- BGS Hydrogeological and Groundwater Vulnerability Maps of Scotland (1:625,000);
- Hutton Institute National Soil Map of Scotland 1:25,000 scale;
- SEPA Flood Maps web mapping<sup>2</sup>;
- SEPA Water Environment Hub<sup>3</sup>; and
- Scottish Government: Drinking Water Protected Areas - Scotland river basin district maps<sup>4</sup>.

<sup>1</sup> British Geological Survey. Geology of Britain viewer (classic): <https://mapapps.bgs.ac.uk/geologyofbritain/home.html> [Accessed 05/07/22]

<sup>2</sup> SEPA Flood Maps: <https://map.sepa.org.uk/floodmaps> [Accessed 05/07/22]

<sup>3</sup> SEPA Water Environment Hub: <https://www.sepa.org.uk/data-visualisation/water-environment-hub/> [Accessed 05/07/22]

<sup>4</sup> Scottish Government Drinking water protected areas – Scotland river basin district maps: <https://www.gov.scot/publications/drinking-water-protected-areas-scotland-river-basin-district-maps/> [Accessed 05/07/22]

### Field Survey

- 10.3.3 Field survey of watercourses was completed by Stagfire Ecological Surveys on behalf of Ramboll. Surveying took place between the 22<sup>nd</sup> and 28<sup>th</sup> July 2022. All data were captured electronically.
- 10.3.4 The purpose of the site walkover was to characterise the typical characteristics of the watercourses present at and around the Site such that potential impacts of watercourse crossings on the water environment may be assessed. The survey consisted of visual inspection and geolocated surveying of watercourses along the proposed secondary access tracks and roads.
- 10.3.5 Two rounds of peat depth probing were undertaken within the Site in June/July and in August 2022. The methodology of peat depth surveying is detailed in **Technical Appendix 10.1: Peat Depth Results Report (EIAR Volume 4)**. The peat probe locations included in the surveys are shown in **Figure 10.7: Peat Depths (EIAR Volume 3a)**.

### Limitations and Assumptions

- 10.3.6 This assessment is based on site-specific survey for the Proposed Development which is considered robust and also refers to and uses publicly available data sources which are assumed to be accurate and therefore sufficient to enable this assessment to be compiled.

## 10.4 Method of Assessment

### Sensitivity of Receptor

- 10.4.1 Based on professional judgement and experience, effects on water resources and geology and soils are described as beneficial, neutral or adverse and are considered with reference to the value or sensitivity of the receptor, on a low to high scale, as described in **Table 10.2**.

<b>Sensitivity of Receptor</b>	<b>Definition</b>	<b>Typical Criteria</b>
High	International or national level importance.  Receptor with a high quality and rarity, regional or national scale and limited potential for substitution / replacement.	<ul style="list-style-type: none"> <li>• High likelihood of fluvial/tidal flooding in the sub catchment - defined as 10% AEP event.</li> <li>• EC Designated Salmonid/Cyprinid fishery.</li> <li>• Surface Water Framework Directive (WFD) class 'High'.</li> <li>• Scottish Government DWPA.</li> <li>• Aquifer providing regionally important resource such as abstraction for public water supply, abstraction for PWS.</li> <li>• Protected Bathing Water Area.</li> <li>• Active floodplain.</li> <li>• Highly GWDTE.</li> <li>• Average peat depth &gt;1 m within the sub catchment.</li> </ul>
Medium	Regional, county and district level importance.  Receptor with a medium quality and rarity, regional scale and limited potential for substitution/ replacement.	<ul style="list-style-type: none"> <li>• Medium likelihood of fluvial/ tidal flooding in the sub-catchment - defined as a 0.5% AEP event</li> <li>• Surface water WFD class 'Good' or 'Moderate'.</li> <li>• Aquifer providing water for agricultural or industrial use.</li> <li>• Local or regional ecological status/locally important fishery.</li> <li>• Contains some flood alleviation features.</li> <li>• Moderately GWDTE.</li> <li>• Average peat depth &gt;0.5 m within the sub catchment.</li> </ul>

**Table 10.2: Sensitivity of Receptor**

Low	<p>Local importance.</p> <p>Receptor is on-site or on a neighbouring site with a low quality and rarity, local scale.</p> <p>Environmental equilibrium is stable and is resilient to changes that are greater than natural fluctuations, without detriment to its present character.</p>	<ul style="list-style-type: none"> <li>• Surface water WFD class 'Poor'.</li> <li>• Unproductive strata/no abstractions for water supply.</li> <li>• Sporadic fish present.</li> <li>• No flood alleviation features.</li> <li>• Sewer.</li> <li>• Potential GWDTE confirmed to be of low sensitivity to change due to heavily modified underlying groundwater bodies.</li> <li>• Average peat depth &lt;0.5 m within the sub catchment.</li> </ul>
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### Magnitude of Impact

10.4.2 The size or magnitude of each impact is determined as a predicted change to the baseline conditions during construction, operation and decommissioning as described in **Table 10.3**.

**Table 10.3: Magnitude of Impact on a Receptor**

Magnitude of Impact	Criteria
High	Large and permanent alteration/change in the quality or quantity of and/or to the physical or biological characteristics such that the environmental resource is fundamentally altered.
Medium	Medium and permanent alteration/change in the quality or quantity of and/or to the physical or biological characteristics of environmental resource, such as the loss of part of an attribute.
Low	Small and permanent alteration/change in the quality or quantity of and/or to the physical or biological characteristics of environmental resource such that the baseline would remain largely unchanged.
Negligible	No detectable or permanent alteration/change in the quality or quantity of and/or to the physical or biological characteristics of environmental resource such that any change is either not discernible or is of a temporary and small consequence.

### Cumulative Effects

10.4.3 Potential cumulative environmental effects upon water resources have been assessed where concurrent proposed developments or construction activity may be in hydrological connection with the Site or water resource receptors.

10.4.4 Where potential cumulative effects are identified, the same criteria as used for assessment of the Proposed Development have been employed.

### Significance Criteria

10.4.5 **Table 10.4** illustrates how residual effects are determined by comparison of the sensitivity of receptors with the magnitude of predicted change. Based on professional judgement, for the purposes of this assessment, major or moderate effects are considered significant in EIA terms.

**Table 10.4: Significance Criteria**

Sensitivity	Magnitude of Change			
	High	Medium	Low	Negligible
High	Major	Major	Moderate	Negligible
Medium	Major	Moderate	Minor	Negligible



**Table 10.4: Significance Criteria**

<b>Low</b>	Moderate	Minor	Negligible	Negligible
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## 10.5 Baseline Conditions

### Current Baseline

#### Surface Hydrology

- 10.5.1 The Site falls within a 30 m buffer of a number of small watercourses, lochs, lochans, and at a number of locations the Proposed Development would cross such features. The watercourses vary from smaller hillside streams and burns to larger meandering watercourses several meters wide.
- 10.5.2 The watercourses in the southernmost section of the Site (south of Tarbert) flow in a south-easterly direction into Loch Tarbert. Moving northwards through the Site, hillside burns north of Tarbert flow in a southerly or westerly direction into Loch a Siar. Close to Ardhasaig the watercourses present are identified to flow east into Loch Seaforth. Northeast of Arivruaich catchments drain to the north and south into Loch Eireasort. The northernmost section of the Site flows either into Loch Liurboist or into Stornoway Harbour.
- 10.5.3 Overall, the Western Isles can be characterised as containing extensive peatlands with many bogs, lochs, burns and surface water drainage features. A lack of woodland means surface water runoff is high and the peatland holds a high reservoir of water<sup>5</sup>.
- 10.5.4 Surface water features are shown in **Figure 10.1: Surface Water Features (EIAR Volume 3a)**.

#### Water Quality

- 10.5.5 A limited number of the watercourses have been classified by SEPA under the Water Framework Directive (WFD) River Basin Management Plans (RBMP):
- The Abhainn Scaladail (ID: 20767<sup>3</sup>) and the Abhainn Ruadh (ID: 20766) are classified as being in overall 'Moderate' condition, downgraded on the basis of water quality;
  - The Allt Loch nam Breac (ID: 20760), Abhainn Mhor (ID: 20759), Abhainn Lacasaigh (ID: 20755), Allt na Craobhe (ID: 20754) are classified as being in overall 'Good' condition; and
  - The Abhainn Ghrioda (ID: 20753) is classified as being overall 'High' condition.
- 10.5.6 The coastal waterbodies, into which the watercourses discharge, are classified as follows:
- Loch Tarbert (ID: 200164), Loch Seaforth (ID: 200177), Loch Erisort (ID: 200184) and Loch Leurbost (ID: 200185) are classified as being in overall 'High' condition; and
  - Loch a Siar (ID: 200169) and Stornoway Harbour (ID: 200191) are classified as being in overall 'Good' condition.
- 10.5.7 The southern half of the Site passes through two DWPA. These are the Bowglass DWPA within the Abhainn Bhìogadail catchment, and the Maaruib DWPA comprising the catchments of the Allt Tomnabhal, Abhainn Mhàraig, Allt Bac a' Ghail, and Loch an Ruisg at Loch Màraig. The Site crosses the downstream extent of the Bowglass DWPA in proximity to Loch Seaforth and crosses the centre of the Maaruib DWPA (**Figure 10.2: Drinking Water Protected Areas (EIAR Volume 3a)**).

#### Geology and Hydrogeology

- 10.5.8 According to the BGS bedrock geology mapping, to the north of Arivruaich the Site is underlain by Mylonitic rock and fault breccia of the Outer Hebrides Thrust Zone Mylonites Complex. South of this point, the Site is underlain

<sup>5</sup> NatureScot. Landscape Character Assessment: Outer Hebrides – Landscape Evolution and Influences. <https://www.nature.scot/doc/landscape-character-assessment-outer-hebrides-landscape-evolution-and-influences>

by Lewisian Gneiss. The final section of the Site, south of Tarbert, is underlain by unnamed igneous intrusions and an outcrop of Lewisian Gneiss. Bedrock geology is shown in **Figure 10.3: Bedrock Geology (EIAR Volume 3a)**.

10.5.9 Along the length of the Site, the superficial geology is limited in extent according to the BGS mapping. The BGS mapping indicates the potential presence of overlying peat in the north of the route near Stornoway, and glacial till deposits near Arivruaich, Ardvoirie and south of Tarbert near the Harris Grid Supply Point (GSP). Superficial geology is shown in **Figure 10.4: Superficial Geology (EIAR Volume 3a)**.

10.5.10 According to BGS 1:625,000 scale hydrogeological mapping, the entire Site is underlain by aquifers of a Low Productivity as shown in **Figure 10.5: Hydrogeology, EIAR (Volume 3a)**, in which flow is virtually all through fractures and other discontinuities. Aquifers underlying the Site are considered unlikely to support public water supplies, or to have the potential to do so.

#### *Peatland and Soils*

10.5.11 The SNH Carbon and Peatland mapping<sup>6</sup> (**Figure 10.6: Carbon and Peatland Mapping 2016 (EIAR Volume 3a)**) shows the Site comprises Class 1, Class 2, Class 3, and Class 5 soils along the route with the most predominant class of soils being Class 1 followed by Class 2.

10.5.12 The definition of the soils present is as follows:

- Class 1: Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas likely to be of high conservation value;
- Class 2: Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas of potentially high conservation value and restoration potential;
- Class 3: Dominant vegetation cover is not priority peatland habitat but is associated with wet and acidic type. Occasional peatland habitats can be found. Most soils are carbon-rich soils, with some areas of deep peat; and
- Class 5: Soil information takes precedence over vegetation data. No peatland habitat recorded. May also include areas of bare soil. Soils are carbon-rich and deep peat.

10.5.13 Peat depth surveys (**Technical Appendix 10.1: Peat Depth Results Report (EIAR Volume 4)** and **Figure 10.7: Peat Depth Plan (EIAR Volume 3a)**) confirmed varying thicknesses of peat along the Site. A total of 12,939 peat depth probes were taken, with most of the Site either having no peat present or shallow depth of peat present (approximately 74.2 % of peat probes were <0.5 m in depth). These areas of shallow peat can be considered as organo-mineral soils. These are further summarised as follows:

- 6,083 no. samples (47.0 %) located on land with no peat/absent;
- 3,517 no. samples (27.2 %) located on land with less than or equal to 50 cm depth of peat or organomineral soil;
- 1,585 no. samples (12.2 %) on land with between 51 cm and 100 cm depth of peat; and
- 1,754 no. samples (13.6 %) located on land with more than 100 cm depth of peat.

10.5.14 Peat along the Site was found to be mostly shallow where present, with some areas of deeper peat. The deeper peat was generally recorded in the northern and central parts of the Site, associated with moorland and peat bog. The peat probe depth and interpolated contours are shown on **Figure 10.7: Peat Depth Plan (EIAR Volume 3a)**. The maximum peat depth recorded was 5.3 m. The mean peat depth recorded was approximately 0.47 m.

#### *Groundwater Dependent Terrestrial Ecosystems*

10.5.15 Ecological surveying, including National Vegetation Classification (NVC) surveys, was carried out by Ramboll ecologists in October 2021 and in February 2022. The surveys identified a number of habitats across the Site with potential (based on species present only) to be Highly or Moderately groundwater dependent vegetation

<sup>6</sup> Scotland Carbon and Peatland 2016 Map. Available online: <https://soils.environment.gov.scot/maps/thematic-maps/carbon-and-peatland-2016-map/>. [Last accessed August 2022].

communities (**Figure 10.8: Habitats with the Potential to be Groundwater Dependent Terrestrial Ecosystems - National Vegetation Classification (EIAR Volume 3a)**). Detailed descriptions of GWDTE are provided in **Chapter 8: Ecology (EIAR Volume 2) and Technical Appendix 10.5: Groundwater Dependent Terrestrial Ecosystems Assessment (EIAR Volume 4)**.

10.5.16 Based on the NVC surveying, further desk-based assessment of the hydrological context of potential GWDTE was carried out. Full details of the assessment are provided in **Technical Appendix 10.5: Groundwater Dependent Terrestrial Ecosystems Assessment (EIAR Volume 4)**.

10.5.17 In summary, based on the connectivity of the majority of the Highly and Moderately GWDTE habitats to watercourses or surface water flow paths, which are considered to present a greater contributing source of water input to the habitat than groundwater, the majority of these habitats are not considered to be dependent on groundwater. The underlying bedrock is metamorphic and igneous rock formations which are not porous, and the underlying aquifer is assessed by the BGS to be of Low productivity, with limited groundwater in the near surface weathered zone and secondary fractures. Therefore, the underlying geology and hydrogeology also supports the conclusion that it is likely the majority of GWDTE are not fed by a groundwater aquifer.

10.5.18 In addition, the potential GWDTE habitats south of Ardvourlie are located primarily on, or at the base of, steep hillslopes where runoff will preferentially flow leading to the assumption these habitats are ombrotrophic (rain fed). The GWDTE habitats between Ballallan and Stornoway in comparison are located in open, flatter, rough, peatland with peat depths of between approximately 3-4 m. These areas are likely to be waterlogged as a result of accumulation of rainwater and also display evidence of peat harvesting or drainage ditches where flow paths have been altered and preferential areas of flow created. The majority of the GWDTE habitats identified through NVC survey are not, therefore, considered to have formed due to significant groundwater contribution and are not considered to be groundwater dependent.

10.5.19 The majority of the Site is therefore assessed to be of Low sensitivity with regards to GWDTE.

#### *Private Water Supplies*

10.5.20 A list of PWS was supplied by CnES and are shown in **Figure 10.9: Private Water Supplies (EIAR Volume 3a)**.

10.5.21 Eight PWS have been identified within 250 m of the Site, or are considered to be in hydrological connectivity with the Site (**Table 10.5**). These PWS have been assessed further in **Technical Appendix 10.6: Private Water Supply Assessment (EIAR Volume 4)**. The Applicant contacted these properties to gather further information on the supplies.

<b>Figure 10.9 Reference</b>	<b>PWS Name</b>	<b>Source Type</b>	<b>Easting</b>	<b>Northing</b>	<b>Distance from Infrastructure</b>
1	Iron Well Lews Castle	Well	141408	932233	1,247 m to poles
2	Loch Lathamul	Loch	138953	930708	380 m to poles
3	Ardvourlie Burn	Watercourse / fed from Scottish Water reservoir at bend in the road.	118681	911474	202 m to a pole
4	Scaladale River	Watercourse	119267	910032	450 m to pole
5		Watercourse	113881	901270	15 m to pole
6	Leachkin Burn	Watercourse	114500	898200	145 m to pole

**Table 10.5: Private Water Supplies Assessed Further**

7	Kendibig Burn	Watercourse	114145	896412	276 m to pole
8	Horscleite River	Loch	113687	894167	180 m to pole

## 10.6 Future Baseline

10.6.1 There is potential for climate change to impact on future baseline conditions. UK Climate Projections (UKCP) predict a decrease in summer precipitation but an increase in the frequency and intensity of rainfall events that do occur, and an increase in winter precipitation alongside slightly higher average temperatures<sup>7</sup>. This suggests that there may be greater pressures on PWS, and impacts to GWDTE, in summer months in the future. 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. These climate change factors have been taken into account when considering the potential for significant effects.

10.6.2 In the absence of the Proposed Development, the morphology and hydrological regime of watercourses within the operational corridor of the Proposed Development are likely to continue to be present in their current form.

### Sensitive Receptors

10.6.3 The sensitivity of the baseline receptors is summarised in **Table 10.6**.

**Table 10.6: Summary of Sensitive Receptors**

Receptor	Sensitivity	Justification
Surface Water	High	The Abhainn Ghrioda is classified in the RBMP as being in 'High' overall condition, as is Loch Tarbert, Loch Seaforth, Loch Erisort and Loch Leurbost. A number of other watercourses and waterbodies are in overall 'Good' condition. All coastal waterbodies into which the watercourses discharge, with the exception of Stornoway Harbour, are classified as being in 'High' overall condition. Therefore, the surface water environment is considered to be of high sensitivity overall.
Groundwater	Low	The Site is underlain by a low productivity aquifer, according to the BGS.
DWPAs	High	Scottish Government DWPAs where water quality must be protected.
GWDTE	Low	Hydrological assessment of potential GWDTE communities within the vicinity of the Site, as identified through NVC survey, has shown these habitats are unlikely to be groundwater dependent.  The NVC communities are closely linked to surface water features and ombrotrophic bog and are therefore considered to be of low sensitivity with regard to groundwater dependency.  Watercourses associated with these habitats are considered to be of high sensitivity.
PWS	High	Eight PWS are within 250 m or considered in potential hydrological connectivity to the Site. Six of these have been assessed ( <b>Technical Appendix 10.6: Private Water Supply Assessment (EIAR Volume 4)</b> ) as being sensitive with the potential to be impacted by the Proposed Development.

<sup>7</sup> Met Office. July 2021. UK Climate Projections: Headline Findings. Version 3.0.

[https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18\\_headline\\_findings\\_v3.pdf](https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18_headline_findings_v3.pdf) [Accessed 12508/22]

**Table 10.6: Summary of Sensitive Receptors**

<p>Peatlands (blanket bog, wet modified bog, wet and dry heath, and flushes)</p>	<p>High</p>	<p>These habitat types are included in Annex 1 of the EC Habitats Directive<sup>8</sup> and are sensitive to environmental change, such as changes to hydrology.</p> <p>While peatland habitats are found to be of varying quality and depth across the study area, and examples of bog and heath habitats are found across Harris, such habitats represent a significant water store and distinctive hydrological regime. As such these areas are considered to be of Regional importance.</p>
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## 10.7 Assessment of Effects

### Mitigation by Design

- 10.7.1 The layout of the Proposed Development has, as far as possible, been designed to avoid direct effects on watercourses, PWS, geology and soils, and sensitive habitats, as detailed in **Chapter 3: Consideration of Alternatives, and Chapter 8: Ecology (EIAR Volume 2)**.
- 10.7.2 Whilst SEPA guidance for a preferred 50 m buffer from watercourses or lochs is acknowledged, it has not been possible to avoid a 50 m buffer for the entire Proposed Development (**Figure 10.1: Surface Water Features (EIAR Volume 3a)**). The majority of poles have been located outwith a 30 m buffer of watercourses. Based on previous experience, a 30 m buffer is considered a suitable distance as the construction of the poles and is not anticipated to result in significant changes to hydrological conditions.
- 10.7.3 The number of watercourse crossings required has been minimised. **Technical Appendix 10.4: Watercourse Crossing Assessment (EIAR Volume 4)** sets out principles of best practice for watercourse crossing design.
- 10.7.4 The Proposed Development will not include the construction of new permanent access tracks which in turn will minimise the need to permanently excavate peat and carbon rich soils. Temporary access tracks and methods to minimise permanent peat excavation have been included as part of the design.

### Potential Effects

#### *Potential Construction Effects*

#### Chemical Pollution

- 10.7.5 There is the potential for the accidental release of stored fuels, oils and materials (e.g. cement and grout) used on-site during construction works to negatively impact surface waters along and downstream of the Site and the underlying groundwater.
- 10.7.6 In the event of a chemical release, there is the potential for a negative impact to surface water resources and to shallow groundwater (if present) in near-surface peat and superficial deposits, with a subsequent impact on biodiversity. Potential effects include degradation of water quality, direct effects on aquatic ecology and indirect effects on the ecology of downstream receptors.
- 10.7.7 Surface waters are assessed to be of high sensitivity, as are the two DWPA fed by the watercourses and lochs. Were an accidental release of potentially harmful materials to occur, such an event could be of a high magnitude. Therefore, in the absence of mitigation there is the potential for a Major impact to receiving waters, and therefore the DWPA, which would be significant.

<sup>8</sup> EC Directive on the Conservation of Natural Habitats and Wild Flora and Fauna (1992): [http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index\\_en.htm](http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm) [August 2022].

#### Sedimentation and Increased Erosion Rates

- 10.7.8 There is the potential for the discharge of increased sediment loads due to construction activity and erosion to negatively impact on aquatic ecology or the fluvial morphology of receptors downstream of the Site. Increased sediment loads may be the result of excavation and surface disturbance, excavation and dewatering of foundation excavations or the mobilisation of stockpiled material.
- 10.7.9 Construction adjacent to watercourses may result in sediment being directly released into watercourses, or sediment may be mobilised via surface water runoff which could reach surface water receptors via overland flow or flow through any artificial drains. Surface water runoff with relatively high sediment loads may also be discharged over or into soil, which may in turn impact on local infiltration capacity or sensitive habitats.
- 10.7.10 There is the potential for hardstanding and compacted surfaces to increase rates of surface water runoff from the Site and for infrastructure to create preferential drainage pathways. Increases in surface water runoff may in turn lead to higher risks of erosion and sedimentation, and also have the potential to increase flood risk downstream.
- 10.7.11 In the absence of mitigation, there could be a potential for a medium magnitude effect on watercourses, which are determined to be of high sensitivity, and in turn the DWPA considered to be of high sensitivity, as a result of increased sediment load; this would be considered a potential Major effect on surface waters and DWPA respectively and, therefore, significant effect.

#### Alteration to Surface Water Flows and Runoff

- 10.7.12 There is the potential for the Proposed Development to increase rates of runoff, leading to an increase in flood risk and indirect effects on aquatic ecology and fluvial morphology downstream of the Site. Areas of potentially reduced permeability include proposed hardstanding areas, tracks and areas of compacted hardcore.
- 10.7.13 In the absence of mitigation, there could be a potential for a high magnitude effect on watercourses, and in turn the two DWPA which are both determined to be of high sensitivity, as a result of increased surface water runoff and flows; this would be considered a Major and therefore **significant** effect.
- 10.7.14 The construction of compounds and access tracks could lead to the restriction of surface water flows and near-surface flows downslope across the Site. This leads to the potential for a reduction in the water supply to down slope sensitive habitats and the risk of peat soils becoming dry or eventually desiccated due to a lowering of the water table and alterations to drainage patterns.
- 10.7.15 In the absence of mitigation, there could be a potential for a medium magnitude impact on sensitive habitats, determined to be of Low sensitivity (GWDTE habitats assessed as not being groundwater dependent but reliant on surface water runoff), as a result of increased sediment load; this would be considered a potential minor effect and, therefore, not significant.

#### Alteration of Groundwater Flows

- 10.7.16 The installation of poles and the presence of tracks could lead to alterations in groundwater flows.
- 10.7.17 Dewatering and temporary abstraction operations could lead to localised lowering in groundwater levels.
- 10.7.18 In the absence of mitigation, there could be a potential for a medium magnitude effect on groundwater, which is determined to be of Low sensitivity, as a result of construction beneath the ground surface, dewatering and temporary abstractions; this would be considered a potential Minor effect and, therefore, **not significant**.

#### Impacts on GWDTE

- 10.7.19 An assessment of potential effects to, and loss of, GWDTE areas is provided in **Chapter 8: Ecology (EIAR Volume 2)**. There is the potential for alterations in the quality or quantity of groundwater supplies to areas identified as potentially groundwater dependent to lead to drying out or an alteration in water chemistry, and therefore the composition of vegetation communities.

10.7.20 The majority of the habitats within the Site are not however considered groundwater dependent and are assessed as being of Low sensitivity. In the absence of mitigation the impact to alteration in groundwater supply is Low and the effect negligible and not significant.

10.7.21 The habitats are considered to be supported by surface water supplies. Therefore, in the absence of mitigation there is the potential for high magnitude effects on the Low sensitivity habitats with respect to the rate and volume of surface water; this would be considered a moderate and therefore significant impact.

#### Impact on Peat and Carbon Rich Soils

10.7.22 In addition to the indirect effects on GWDTE, changes to local soils and peat habitats could occur as a result of:

- Compaction of soils;
- Potential for increased erosion of peat soils through disturbance, either through direct disturbance or localised drying caused by infrastructure; and
- Loss of peatland habitats and carbon rich soils through excavations for infrastructure.

10.7.23 An OPMP has been prepared for the Proposed Development (see **Technical Appendix 10.2: Outline Peat Management Plan (EIAR Volume 4)**) which documents measures to mitigate potential impacts, as listed above, on peat and carbon rich soils through the construction phase. This is a working document that will be updated as the project progresses through detailed design, construction and operation. Peat habitats are considered to be of medium or high sensitivity. Loss and degradation of peat can result in the release of carbon dioxide and result in habitat loss. The OPMP would set out measures for impacts on peat and carbon rich soils so that they are reduced to a low or negligible magnitude, particularly with regard to any areas of deeper peat, such that no significant effects are predicted.

#### Impacts on PWS

10.7.24 There is the potential for alteration in the quality e.g. through chemical pollution and sedimentation as detailed above, and/or quantity of surface water and groundwater supplies which could impact the quality and quantity of water to PWS.

10.7.25 SEPA guidance<sup>9</sup> states that PWS within 250 m of excavations less than 1 m in depth, or within 100 m of excavations greater than 1 m in depth require further assessment.

10.7.26 Eight PWS have been identified within 250 m of the Site or are considered to be in hydrological connectivity with the Site. Further assessment of these PWS (**Technical Appendix 10.6: Private Water Supply Assessment (EIAR Volume 4)**) determined six of the eight supplies to be sensitive to the construction of the Proposed Development due to their proximity to the Site. The remaining two were not assessed to be sensitive as they are located more than 250 m from the Proposed Development and / or the Proposed Development is not within the PWS catchment area.

10.7.27 In the absence of mitigation, there is the potential for a high magnitude impact on PWS receptors of high sensitivity (six supplies, references 2, 3, 5, 6, 7 and 8 in **Figure 10.9: Private Water Supplies, EIAR Volume 3a**) which would be considered a Major and therefore significant impact.

#### Impacts from Watercourse Crossings

10.7.28 Where proposed access tracks are required to cross a watercourse, there is a requirement for that infrastructure to be within 50 m of watercourses, and work would directly impact the banks of the watercourse.

10.7.29 During the construction of watercourse crossings, there is potential for activities to negatively impact both water quality and the natural morphology. SEPA's good practice guide (Engineering in the water environment: River

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<sup>9</sup> LUPS-GU31 SEPA 2017 Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems [https://www.sepa.org.uk/media/143868/lupsgu31\\_planning\\_guidance\\_on\\_groundwater\\_abstractions.pdf](https://www.sepa.org.uk/media/143868/lupsgu31_planning_guidance_on_groundwater_abstractions.pdf) [Accessed 15/08/22]

crossings (Natural Scotland and SEPA, 2010<sup>10</sup>) identifies that, where proper care is not taken during the construction phase, disturbance of river bed and banks can lead to the direct loss of aquatic flora and fauna, and the release of fine sediments and other pollutants that may lead to the smothering of plants and animals or the habitats they depend on.

10.7.30 All surface water features associated with proposed infrastructure crossings have been considered within a Watercourse Crossing Assessment (**Technical Appendix 10.4: Watercourse Crossing Assessment (EIAR Volume 4)**). There are 34 crossings proposed, 23 of which are existing crossings.

10.7.31 In the absence of mitigation, there could be a potential for a high magnitude impact on watercourses, which are determined to be of high sensitivity, as a result of the new watercourse crossing; this would be considered a major effect and therefore significant.

#### *Potential Operational Effects*

##### Chemical Pollution and Sedimentation

10.7.32 The potential risk of the release of pollutants or sediment from activities relating to the operational phase of the Proposed Development is substantially lower than during construction because of the decreased levels of ground disturbance. However, the operation or refuelling of plant machinery may take place within the Site during maintenance periods of the operational phase.

10.7.33 In the absence of mitigation, there could be a potential for a Negligible magnitude impact on watercourses, which are determined to be of high sensitivity, as a result of increased sediment load; this would be considered a potential minor and therefore not significant effect.

##### Surface Water Flows and Runoff

10.7.34 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; however as described in **Chapter 2: Description of Proposed Development (EIAR Volume 2)**, the Proposed Development would incorporate a drainage design using SuDS principles in accordance with The SuDS Manual (C753) 2015<sup>11</sup>.

10.7.35 In the absence of mitigation and appropriate drainage, there could be a potential for a Negligible magnitude impact on watercourses, which are determined to be of high sensitivity, as a result of increased sediment load; this would be considered a minor and therefore not significant effect.

##### Groundwater Flows

10.7.36 There is the potential for infrastructure installed to present a barrier to near surface and/or groundwater flows across the alignment of the Proposed Development during the operational phase. Should cross drainage measures not be appropriately installed, there is the potential for tracks to impede the movement of surface waters across blanket bog leading to the drying out or desiccation of areas dependent on water supply or retention.

10.7.37 In the absence of mitigation, there may be potential for a medium magnitude impact on sensitive habitats, which are determined to be of Low sensitivity, as a result of alterations to groundwater or near surface flows; this would be considered a potential minor and therefore not significant effect.

10.7.38 No potential operational phase impacts on peat and carbon rich soils are anticipated.

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<sup>10</sup> SEPA. Engineering in the water environment: good practice guide. River Crossings. Second edition, November 2010.

<https://www.sepa.org.uk/media/151036/wat-sg-25.pdf> [Accessed 15/08/22]

<sup>11</sup> CIRIA. The SuDS Manual (C753) 2015. [https://www.susdrain.org/resources/SuDS\\_Manual.html](https://www.susdrain.org/resources/SuDS_Manual.html)



## 10.8 Mitigation

- 10.8.1 The mitigation schedule set out below identifies measures that shall be implemented through the final CEMP to be developed by the Appointed Contractor, and detailed assessment of further measures that shall be implemented at hydrologically sensitive locations.
- 10.8.2 The CEMP would include construction methods and environmental protection measures applying best practice guidance as set out in applicable SEPA PPGs, and applicable SSEN GEMPS presented in **Technical Appendix 2.2: General Environmental Management Plans (GEMP) (EIAR Volume 4)**. Implementation of these measures during all aspects of the construction phase would prevent adverse effects of construction activity upon sensitive receptors.
- 10.8.3 It is anticipated that the Proposed Development would be subject to a construction site licence under CAR and, as such, the detailed design of proposed drainage works would be subject to licensing requirements and compliance with regulations. Specific requirements would be agreed in consultation with CnES and SEPA and set out in the Construction Site License application.

### Mitigation During Construction

#### Chemical Pollution

- 10.8.4 The potential for impacts on the water environment through the release of pollutants during the construction phase would be managed through the implementation of a CEMP. The CEMP would incorporate measures to prevent the release of sediments or pollutants to the surrounding environment. These would be detailed in the PPP to be developed by the Appointed Contractor.
- 10.8.5 The storage of potentially contaminative materials (oils, cements/grouts) shall be carried out at least 50 m from watercourses. Fuels, oils or chemicals stored on-site shall be sited over an impervious base and according with CAR.

#### Sedimentation and Erosion

- 10.8.6 Sediment capture methods to be implemented would be detailed in the CEMP. Such measures shall direct sediment laden runoff from disturbed or excavated ground through appropriate treatment trains. These would be detailed in the PPP to be developed by the Appointed Contractor.
- 10.8.7 Where required, interceptor ditches shall divert waters to locations downstream of proposed excavation or soil disturbance works associated with the installation of pole foundations and the development of construction compounds. These would be specified in a PPP that would be compiled by the contractor in accordance with SEPA guidance<sup>12</sup>.

#### Alteration to Surface Water Flows and Runoff

- 10.8.8 Details of construction phase SuDS would be included in the PPP and the final CEMP, as required, to provide a surface water management and treatment train that would mitigate potential adverse impacts on the hydrology as well as water quality of the surrounding environment during the construction phase of the Proposed Development. Measures would seek to maintain pre-development runoff rates and that rates of runoff to watercourses are not increased. A full SuDS solution would be developed prior to construction. Construction site plans and proposed drainage measures shall form a PPP that would be compiled by the Appointed Contractor.
- 10.8.9 At the limited number of locations where a track is required to cross a watercourse, or where other infrastructure is necessary within 50 m of a surface watercourse, either as described in this chapter or as identified by the ECoW, the installation of SuDS measures shall be supervised by the ECoW during the construction phase of works. The requirement for monitoring of water quality within watercourses downstream of the Proposed Development would be agreed with SEPA. Procedures for this would be detailed in the final CEMP. Where applicable, prior to

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<sup>12</sup> Supporting Guidance (WAT-SG-75), Sector Specific Guidance: Construction Sites February 2018, URL: <https://www.sepa.org.uk/media/340359/wat-sg-75.pdf> [Accessed 15/08/22]

commencement of work, works baseline water quality monitoring shall be carried out (both upstream and downstream) and repeated during the construction works at agreed intervals.

10.8.10 Any requirement for surface water abstraction will be completed in accordance with CAR.

#### Alteration to Groundwater Flows

10.8.11 The CEMP would include measures to minimise potential adverse effects related to surface water and groundwater discharge, including impacts associated with dewatering which may arise from the excavation of foundations. Therefore, the Appointed Contractor shall be required to meet regulatory requirements and implement best practice measures as set out in SEPA planning guidance.

10.8.12 The requirement of groundwater monitoring would be detailed in the final CEMP. This may include baseline groundwater quality monitoring which would be repeated during construction. Any requirement for groundwater water abstraction will be completed in accordance with the CAR.

#### DWPAs and Public Water Supply Assets

10.8.13 A minimum buffer strip of six metres should be incorporated between any watercourse or waterbody and proposed secondary access tracks to protect water quality. The contractor would request Scottish Water asset location mapping prior to detailed design of any permanent infrastructure or excavations.

#### GWDTE

10.8.14 Although the potential for habitats to be GWDTE is limited, prior to and during the construction phase of the Proposed Development under the advice of an onsite ECoW, the potential to micro-site infrastructure (within the agreed limits) to avoid sensitive habitats would be investigated.

10.8.15 Although not GWDTE, it is considered that the maintenance of quality and quantity in surface water distribution across habitats will be important. Suitable drainage and surface water management measures would be implemented, utilising SuDS where possible, to maintain hydrological connectivity in peatland and wetland habitats and prevent deleterious impacts on surface water distribution. Such suitable drainage and surface water management measures would be addressed in the final CEMP to be developed by the Appointed Contractor.

#### PWS

10.8.16 Detailed pre-construction PWS risk assessments would be completed by the Appointed Contractor and a Site specific PWS Protection Plan would be developed. This would confirm the locations of the PWS sources on-site, detail pre-construction monitoring of water quality required, and appropriate pollution prevention measures.

10.8.17 During construction, water quality would be monitored. If the quality and/or quantity of water to the PWS is impacted by the Proposed Development, a temporary alternative water source would be supplied until remedial works are completed.

10.8.18 Water quality would be monitored immediately following construction to confirm the PWS is unaffected.

#### Watercourse Crossings

10.8.19 Construction shall be carried out in accordance with SEPA best practice<sup>13</sup> and SEPA Guidance for Pollution Prevention<sup>14</sup> to prevent direct siltation of watercourses.

10.8.20 The detailed design of each watercourse crossing would seek to maintain hydraulic conveyance to prevent any restriction of flows, as well as allowing the free passage of mammals and aquatic ecology. Therefore, it is proposed that each watercourse crossing would have sufficient capacity to pass the climate change-adjusted 1 in 200 year (0.5% AEP) flood including an allowance for partial blockage.

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<sup>13</sup> SEPA, 2010. Engineering in the Water Environment: Good Practice Guide, River Crossings.

<sup>14</sup> SEPA 2018. GPP5: Works and Maintenance in or Near water:

10.8.21 So that all drainage measures employed during the construction phase of the Proposed Development are maintained appropriately and remain effective, the performance of the drainage measures would be monitored. The drainage management works would, therefore, be supervised by the ECoW and be in accordance with the CEMP.

#### Peat and Carbon Rich Soils

10.8.22 Key measures to minimise and prevent impacts to peat and carbon rich soils are included within the OPMP (**Technical Appendix 10.2: Outline Peat Management Plan (EIAR Volume 4)**) and PLHRA (**Technical Appendix 10.3: Peat Landslide Hazard Risk Assessment (EIAR Volume 4)**). These set out good practice measures and specific mitigation measures to minimise the potential effects on peat and carbon rich soils. Specific mitigation to be included to minimise and reduce potential impacts on peat and carbon rich soils include:

- Proposed construction access would use non-intrusive methods such as use of 'bog mats' and other methods to minimise damage and compaction of peat. Access tracks located over deep peat (>1 m in depth) could be 'floated' to minimise the volume of excavated peat;
- Poles located over deep peat would be constructed using a 'bog shoe' foundation solution where practicable to minimise the peat excavation and disturbance required. Working areas will be constructed using a layer of geotextile and stone over the peat, which can be reinstated on completion;
- Avoid cutting trenches or aligning excavations across slopes (which may act as incipient back scars for peat failures) unless appropriate mitigation has been put in place;
- Awareness of peat instability and pre-failure indicators would be incorporated in site induction, tool box talks, and training to enable all site personnel to recognise ground disturbances and features indicative of incipient instability;
- Peat and carbon rich soils would be stored temporarily on site during the works in accordance with the OPMP to avoid desiccation and creation of run-off; and
- All peat and carbon rich soils excavated during the works would be used for the reinstatement at the pole locations, resulting in no surplus excavated peat.

#### **Mitigation During Operation**

10.8.23 A site maintenance programme with regard to site plant and infrastructure would be implemented by the Appointed Contractor.

10.8.24 A maintenance schedule would be developed for all SuDS and drainage assets installed at construction stage so that the function and benefit provided by the asset remains for the lifetime of the Proposed Development.

### **10.9 Residual Effects**

#### **Residual Construction Effects**

##### Chemical Pollution

10.9.1 The potential for impacts on the water environment through the release of pollutants during the construction phase shall be managed through the implementation of a CEMP. The CEMP shall incorporate measures that would avoid the release of pollutants to the surrounding environment and would comply with SEPA's PPGs/GPPs and General Binding Rules (GBRs). Measures such as the use of spill kits, placement of impermeable geotextile membranes and the suitable storage, maintenance and handling of equipment and materials would effectively limit the release of contaminants to the water environment and the associated potential significant effects.

10.9.2 Through the implementation of mitigation, the residual impacts on surface waters and in turn the two DWPA, receptors of high sensitivity, with respect to chemical pollution are anticipated to be negligible and therefore of negligible effect and **not significant**. The residual impacts on GWDTE and groundwater, receptors of Low sensitivity, are anticipated to be of negligible magnitude and therefore a negligible and **not significant** effect.

### Sedimentation and Increased Erosion

- 10.9.3 The potential for adverse impact on water quality and fluvial morphology associated with sediment-laden runoff or impacts on bank integrity would be taken into account in the CEMP and a suitable buffer to watercourses maintained.
- 10.9.4 Furthermore, SuDS designs would allow for the capture of any additional sediment load that could be released during the construction phase. Where access tracks are proposed within 50 m of watercourses, the implementation of additional sediment control measures would be overseen by the ECoW, who would also carry out daily inspection of sediment control measures and the watercourse.
- 10.9.5 Therefore, with the implementation of mitigation, the residual effects on surface waters and in turn the two DWPA considered to be of high sensitivity is of negligible magnitude and therefore a negligible and **not significant** effect.

### Alteration to Surface Water Flows and Runoff

- 10.9.6 The potential for adverse impact on runoff volumes and rates through the increase in impermeable surfaces and the alteration of drainage patterns shall be mitigated through the implementation of best practice measures as outlined above and set out in the CEMP. Therefore, the residual impact on surface waters of high sensitivity would be of negligible magnitude and a negligible and therefore **not significant** effect.

### Alteration to Groundwater Flows

- 10.9.7 Through implementation of the CEMP the residual effects upon groundwaters of low sensitivity would be of negligible magnitude and therefore a negligible and **not significant effect**.

### GWDTE

- 10.9.8 Through the implementation of mitigation, via the CEMP, to maintain water quality and the quantity of contribution to sensitive habitats (which are not considered groundwater dependent), the residual impact upon habitats of low sensitivity would be negligible and therefore **not significant**.

### PWS

- 10.9.9 PWS are considered to be of high sensitivity. With implementation of the mitigation set out in section 10.8 of this chapter, and **Technical Appendix 10.6: Private Water Supply Assessment (EIAR Volume 4)**, the magnitude of impact would be negligible such that the residual effects on PWS is anticipated to be negligible and **not significant**.

### Watercourse Crossings

- 10.9.10 The design of watercourse crossings and drainage features associated with infrastructure would be in line with CAR and set out in a Construction Site License in consultation with SEPA and CnES.
- 10.9.11 Adherence to specific guidance related to watercourse crossings, referenced in **Technical Appendix 10.4: Watercourse Crossing Assessment (EIAR Volume 4)**, and implementation of the CEMP are anticipated to result in negligible impacts on surface water receptors of high sensitivity with respect to sedimentation, erosion and alterations to flows as a result of crossings and therefore **no significant** residual effects are anticipated.

## **Residual Operational Effects**

- 10.9.12 Following appropriate design and construction and provided suitable maintenance schedules are developed and are adhered to, residual adverse effects on surface water, groundwater, GWDTE, geology and soils, and PWS receptors during the operational phase would be **not significant**.

## **10.10 Cumulative Effects**

- 10.10.1 Cumulative schemes within 6 km of the Proposed Development are shown in **Figure 12.1: Cumulative Developments (EIAR Volume 3a)**.

10.10.2 Cumulative developments which are operational are not considered to have the potential to lead to in-combination effects with the Proposed Development. This is because the potential for significant effects to hydrology and hydrogeology are considered greatest during construction.

10.10.3 Therefore, developments considered to have potential cumulative effects on the water environment and in hydrological connectivity to the Proposed Development are:

- Stornoway Wind Farm;
- Beinn Thulabaigh Wind Farm; and
- Aignish Community Wind Farm.

10.10.4 There is the potential for cumulative and in-combination hydrological effects with the above developments if construction were to take place at the same time as the Proposed Development. However, the EIA for Stornoway Wind Farm and Beinn Thulabaigh Wind Farm concluded there would be no significant residual effects to the water environment with the application of mitigation. Therefore, it is considered that the addition of the Proposed Development (with negligible magnitude and therefore not significant residual effects) would not give rise to significant cumulative effects when considered in combination with those developments.

10.10.5 The Aignish Community Wind Farm is at scoping stage but it is reasonable to assume that this development would also incorporate good practice drainage management measures and mitigation into their respective designs such that effects on the water environment would be not significant. Therefore, it is considered the Proposed Development (with negligible magnitude and therefore not significant residual effects) would not give rise to significant cumulative effects.

10.10.6 Cumulative effects (i.e. effects of more than one development upon a single environmental factor) is not considered relevant to the assessment of geology and soils as these are limited to the footprint of the Proposed Development. In addition, impacts associated with geology are not considered relevant to assessing likely combined effects of environmental factors upon single receptors such as may be assessed for other environmental effects on one receptor.

## 10.11 Monitoring

### Construction Phase Monitoring

10.11.1 A pre-construction survey and detailed PWS risk assessment of PWS identified to be sensitive to the Proposed Development (Reference 2, 3, 5, 6, 7 and 8 in **Figure 10.9: Private Water Supplies (EIAR Volume 3a)**) would be carried out by the Appointed Contractor. A Site specific PWS Protection Plan would be developed which would detail the programme of water quality monitoring at these PWS which may be required and which would be implemented prior to the initiation of construction activity such that a baseline of water quality may be established, regular monitoring should be carried out during the construction phase, and final period of monitoring post construction.

10.11.2 The location and frequency of water quality monitoring shall be agreed with SEPA and water quality monitoring shall be supervised by the ECoW.

10.11.3 A maintenance schedule and monitoring of the function of all SuDS and drainage assets would be developed by the Appointed Contractor.

### Operation Phase Monitoring

10.11.4 Taking into account the minimal potential for impacts to PWS during the operational phase, no ongoing monitoring is considered necessary.

## 10.12 Summary

10.12.1 **Table 10.6** provides a summary of the potential significant effects considered, proposed mitigation and commitments and the residual effects.

<b>Table 10.6: Summary of Significant Effects of the Proposed Development</b>			
<b>Potential Significant Impact</b>	<b>Mitigation Proposed</b>	<b>Means of Implementation</b>	<b>Outcome / Residual Effect</b>
<b>Construction</b>			
<b>Chemical Pollution</b> Major (significant) potential impact on surface waters and groundwaters, and therefore DWPA, due to release of chemical pollutants.	Storage, containment and operational best practice shall be implemented. Suitable emergency spill or leak response kits and procedures shall be in place.	Detailed through the CEMP and associated PPP.  Detailed specification shall be submitted to SEPA with regards to the application for a Construction Site License by the Appointed Contractor.	Not Significant.
<b>Sedimentation</b> Major (significant) potential impact on surface waters on and downstream of the Proposed Development, and therefore impacts to the DWPA due to effects on water quality due to increased sediment loads.	Implementation of 50 m buffers to watercourses for storage of materials.  Implementation of best practice with regards to construction methods in close proximity to watercourses. To include diversion ditches around excavation works.  Implementation of best practice with regards to construction of watercourse crossings.  Baseline and subsequent water quality monitoring.	Detailed through the CEMP and associated PPP.  Monitoring of works by the ECoW, inspection of watercourses during the construction phase.	Not Significant.
<b>Surface Water Flows</b> Major (significant) potential impact on surface waters beneath and downstream of the Proposed Development, due to hardstanding and compacted surfaces leading to increased rates of surface runoff on the area of the Proposed Development and for infrastructure to create preferential drainage pathways.	Drainage management proposals so that pre-construction rates/ volumes of runoff maintained.  The drainage management works will be supervised by the ECoW.	Detailed drainage calculations to be submitted by the Appointed Contractor to quantify potential increases in surface runoff and define operational parameters for SuDS measures.	Not Significant.
<b>Groundwater Flows</b> Minor (not significant) effects on groundwater, associated with chemical pollution, alteration of sub-surface flows and	The Appointed Contractor shall be required to meet regulatory requirements and implement best practice measures as set out in SEPA planning guidance.	Detailed through the CEMP.  Any requirement for groundwater water abstraction will be	Not significant.

**Table 10.6: Summary of Significant Effects of the Proposed Development**

lowering groundwater table.		completed in accordance with the CAR.	
<p><b>Impact to GWDTE</b></p> <p>Moderate (significant) potential impact on GWDTE due to restriction of surface water flows and near-surface flows downslope across the alignment. This leads to the potential for a reduction in the water supply to downslope GWDTE habitats.</p>	<p>Prior to and during the construction phase of the proposed development under the advice of an onsite ECoW, the potential to micro-site infrastructure will be investigated.</p> <p>Maintenance of 'clean' water flows around construction locations and into surface water reliant habitats.</p> <p>Suitable distribution of surface waters from SuDS measures.</p>	<p>Detailed through the CEMP and associated PPP.</p> <p>Monitoring of works by the ECoW.</p>	Not significant.
<p><b>Geology and Soils</b></p> <p>Major (significant) impacts to peat arising from the excavation and disturbance of peat from construction activities.</p> <p>Changes to local soils and peat habitats could occur as a result of:</p> <ul style="list-style-type: none"> <li>• Compaction of soils;</li> <li>• Potential for increased erosion of peat soils through disturbance, either through direct disturbance or localised drying caused by infrastructure;</li> <li>• Changes in soil hydrology;</li> <li>• Potential for peat slide caused by the construction of infrastructure which could affect human and environmental receptors; and</li> <li>• Loss of peatland habitats and carbon rich soils through excavations for infrastructure.</li> </ul>	<p>As discussed in <b>Chapter 3: Consideration of Alternatives (EIAR Volume 2)</b>, the siting of the Proposed Development has taken into account the presence of peat and carbon rich soils through the design process.</p> <p>This has included siting infrastructure to avoid areas of deep peat (where practicable) and also utilising existing tracks and construction methods (such as bog mats and bog shoes) to minimise disturbance of peat, although this has been undertaken in conjunction with the other environment and technical constraints.</p> <p>An OPMP (<b>Technical Appendix 10.2: Outline Peat Management Plan (EIAR Volume 4)</b>) has been prepared for the Proposed Development which documents outline measures to mitigate potential impacts on peat and carbon rich soils through the construction phase. This is a live document that would be updated further as the project progresses through detailed design and operation. The OPMP would implement measures to reduce or minimise impacts on peat and carbon rich soils particularly with regard to any areas of deeper peat.</p> <p>A PLHRA (<b>Technical Appendix 10.3: Peat Landslide Hazard Risk Assessment (EIAR Volume 4)</b>) has been prepared</p>	<p>Detailed through the CEMP, OPMP and PLHRA, and to be further refined by the Contractor through development of detailed CEMP and PMP and further ground investigation works.</p> <p>Monitoring of works by the ECoW.</p>	Not significant.

**Table 10.6: Summary of Significant Effects of the Proposed Development**

	<p>which outlines the potential risks of the Proposed Development resulting in peat landslides as a result of construction activities.</p> <p>The majority of the Site is considered to be low or very low risk with regards to peat slide risk.</p> <p>Where areas of medium risk have been identified then micro-siting of pole locations away from these areas is considered best practice. Where this is unachievable employing safe excavation practices, limiting the time excavations are left open and employing the use of “bog shoes” during construction to support pole foundations will reduce the risk of peat instability and reduce the need for additional peat excavation.</p>		
<p><b>Impacts to PWS</b></p> <p>Major (significant) potential impact on PWS due to alteration in water quantity and / or quality.</p>	<p>Detailed pre-construction surveys to be completed by the Appointed Contractor.</p> <p>Water quality monitoring during construction and an alternative supply provided if the PWS is impacted until remedial works are completed.</p>	<p>Detailed through the CEMP and specific PWS Protection Plan.</p>	<p>Not significant.</p>
<p><b>Operation</b></p>			
<p>Minor (non-significant) effects associated with chemical pollution; sedimentation; alteration to runoff volumes and rates and fluvial morphology through the alteration of drainage patterns.</p>	<p>None required.</p> <p>Ongoing maintenance for all proposed drainage measures particularly including water crossings and SuDs designed to manage water quality and runoff rate.</p> <p>Maintenance schedule for site operation to follow good practice for managing hazardous chemicals.</p>	<p>Relevant legislation and good practice measures for site operation to be followed.</p>	<p>Not significant.</p>
<p>No impact (non-significant) for GWDTE during operation further to those identified for the construction phase.</p>	<p>None required.</p>	<p>Not applicable.</p>	<p>Not significant.</p>
<p>No impact (non-significant) for PWS during operation further</p>	<p>None required.</p>	<p>Not applicable.</p>	<p>Not significant.</p>



<b>Table 10.6: Summary of Significant Effects of the Proposed Development</b>			
to those identified for the construction phase.			
<b>Cumulative Construction</b>			
Potential (non-significant) cumulative effects to water quality and quantity as a result of other developments in hydrological connectivity with the Proposed Development.	No additional mitigation over and above that set out above.	CEMP and PPP.	Not significant.
<b>Cumulative Operation</b>			
No cumulative effects are anticipated.	None required.	Not applicable.	Not significant.

## 11. TRAFFIC AND TRANSPORT

### 11.1 Introduction

11.1.1 This chapter assesses the potential effects on traffic and transport associated with the construction, operation and decommissioning of the Proposed Development. This chapter (and its associated Figures and Appendices) is not intended to be read as a standalone assessment and reference should be made to the introductory chapters of this EIAR (**Volume 2, Chapters 1-5**).

11.1.2 The technical reviewer of the traffic and transport assessment is Gordon Buchan BEng (Hons), MSC, CMILT, FCIHT, Divisional Director of Pell Frischmann. He has over 25 years' experience of undertaking the transport assessments associated with new developments and has worked on renewable energy and energy distribution projects across the UK, Ireland and Northern Europe. The author is Elaine Moran BEng (Hons), MSC, MCIHT, Transport Planner. She has over six years of experience in the transport planning industry.

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

- Volume 3a: Figures
  - Figure 11.1: Study Area;
  - Figure 11.2: Traffic Count Locations;
  - Figure 11.3: Accident Locations; and
  - Figure 11.4: Construction Traffic Delivery Routes.
- Volume 4: Technical Appendices
  - Technical Appendix 11.1: Transport Assessment.

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

### 11.2 Assessment Methodology

#### Scope of Assessment

11.2.1 The chapter considers:

- direct effects during construction on traffic flows in the surrounding Study Area;
- direct effects upon local road users; and
- effects upon local residents from an increase in construction traffic.

11.2.2 Where the effects meet the criteria set out in the IEMA guidance, a review of the effects on severance, driver delay, pedestrian delay, pedestrian amenity, fear and intimidation and accidents / road safety has been undertaken.

11.2.3 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. Consented developments are considered as committed development and are considered as part of the baseline.

11.2.4 The assessment is based on the Proposed Development as described in **Chapter 2: Description of the Proposed Development (EIAR Volume 2)**. In summary, the Proposed Development will comprise the construction of approximately 58 km of new 132 kV OHL from the existing Harris grid supply point to the existing Stornoway substation. The Proposed Development will replace the existing aged 132 kV OHL asset which will be dismantled and removed as part of the project works. Temporary works and ancillary works will be undertaken to facilitate the construction and operation of the Proposed Development.

11.2.5 The scope of the assessment has been informed by consultation responses summarised in **Table 11.1** and the following guidelines/policies:

- The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended)<sup>1</sup>;
- The Guidelines for the Environmental Assessment of Road Traffic (1993)<sup>2</sup>;
- Scottish Planning Policy (2014)<sup>3</sup>;
- Planning Advice Note 75 (2005)<sup>4</sup>;
- Transport Assessment Guidance (2012)<sup>5</sup>; and
- Outer Hebrides Local Development Plan (2018)<sup>6</sup>.

### Extent of the Study Area

- 11.2.6 The Study Area includes local roads that are likely to experience increased traffic flows resulting from the Proposed Development. The geographic scope was determined through a review of Ordnance Survey (OS) plans and an assessment of the potential origin locations of construction staff and supply locations for construction materials.
- 11.2.7 Materials for the construction of the access tracks will arrive to the Site from local quarries, which are located in Aird Asaig, to the northwest of Tarbert and to the west of Stornoway, via the A859. Equipment and materials to mobilise the Site will be delivered to the Site via existing ferry links from Ullapool.
- 11.2.8 The highway links assessed as part of this assessment includes the A859, between Grose-Clett and to the south of Stornoway.
- 11.2.9 The Study Area is illustrated in **Figure 11.1: Study Area (EIA Volume 3a)**.

### Consultation Undertaken to Date

- 11.2.10 Consultation undertaken to date mainly pertains to the EIA Scoping Report. Scoping responses received at the time of writing that are relevant to this chapter are captured in **Table 11.1**. Further information can be found in **Appendix 4.3: Scoping Consultation Register (EIA Volume 4)**.

<b>Organisation</b>	<b>Type of Consultation</b>	<b>Response</b>	<b>How response has been considered</b>
Comhairle nan Eilean Siar (CnES) (06/07/2022) Roads Comments	Scoping	CnES does not hold any environmental information relevant to the EIA for roads.	Noted.
		CnES is satisfied with the proposed approach for baseline collection, prediction and significance assessment for roads	Noted.
		There are some specific issues that CnES would be looking at when more detailed information is available (proximity to existing carriageway, construction on steep terrain above live carriageway etc) which we	The proposed alignment is set back on average by 275 m from the public road and is not located in areas of steep terrain within the

<sup>1</sup> <https://www.legislation.gov.uk/uksi/2017/571/contents/made>

<sup>2</sup> Traffic, Institute of Environmental Assessment (IES), 1993, The Guidelines for the Environmental Assessment of Road

<sup>3</sup> Scottish Government, 2014, Scottish Planning Policy, <https://www.gov.scot/publications/scottish-planning-policy/>

<sup>4</sup> Scottish Government, 2005, Planning Advice Note 75, <https://www.gov.scot/publications/planning-advice-note-pan-75-planning-transport/>

<sup>5</sup> Transport Scotland, 2012, Transport Assessment Guidance, <https://www.gov.scot/publications/transport-scotland-core-documents/>

<sup>6</sup> Comhairle nan Eilean Siar, 2018, Outer Hebrides Local Development Plan, <https://www.cne-siar.gov.uk/planning-and-building/planning-service/development-planning/development-plan/local-development-plan/>

**Table 11.1: Scoping responses and other consultation of relevance**

Organisation	Type of Consultation	Response	How response has been considered
		assume will be assessed in the traffic and transport chapter.	immediate vicinity of the A859.  Further detail on the proposed alignment is provided in <b>Chapter 2: Description of Development.</b>
		During the construction phase any poles/stays should be a min 7m from the main road edge.	Noted. All infrastructure is to be located at least 7m from the public road with the exception of pole #579 (NGR 134781 927354) which is currently located 5.3 m from the edge of the public road.
		CnES is in agreement with the list of issues to be scoped out.	Noted.
British Horse Society (BHS) (18/05/2022)	Scoping	The BHS expects developers to work with representatives of the local horse riding community to understand their road safety and countryside access concerns and facilitate engagement with other partners and consider whether any road safety interventions should be introduced, where there are significant numbers of horse riders and/or road traffic collisions involving horses.	Measures which consider the impact of construction traffic on horses and riders is presented as part of the Path Management Plan presented in the Mitigation section.
Transport Scotland (16/06/2022)	Scoping	Given the nature of the proposal and the distance to the nearest trunk road, Transport Scotland is satisfied that there will be no impact or material change to the trunk road network arising from the construction or the operation of the proposed OHL. We can confirm, therefore, that no further information is required in this regard.	Noted.

## Effects Scoped Out

### Operational Effects

11.2.11 Once operational, it is envisaged that the level of traffic associated with the Proposed Development would be minimal. Regular maintenance visits would be made using 4x4 vehicles and as such, no detailed assessment of the operational phase of the Proposed Development has been undertaken.

### *Decommissioning Effects*

11.2.12 The traffic generation levels associated with the decommissioning phase will be less than those associated with the construction phase as some elements, such as access roads, would remain in place. The construction phase therefore represents a worst-case assessment and as such, no further assessment of the decommissioning phase has been considered at this point in time and has been scoped out of the assessment.

## **11.3 Method of Baseline Data Collection**

### **Desk Study**

11.3.1 The desk study included reviews and identification of the following:

- Relevant transport policy;
- Accident data;
- Sensitive location;
- Any other traffic sensitive receptors in the area (core paths, routes, communities, etc.)
- OS plans; and
- Potential origin locations of construction staff and supply locations for construction material to inform extent of local area roads network to be included in the assessment.

### **Field Survey**

11.3.2 A review of the A859 has been undertaken to review the nature of the road and to help understand possible receptors.

### **Limitations and Assumptions**

11.3.3 The assessment is based upon an assumed 30 month construction programme for the Proposed Development. Alterations in this programme, may increase or decrease traffic flows per month.

11.3.4 This assessment is based upon average traffic flows. There may be localised peaks with construction days where flows can be higher for a specific hour, such as a shift change on site or an intensive workstream.

11.3.5 Assumptions on the origin points for materials have been made to provide a worst-case assessment scenario. Should these origin points change, the effects on surrounding areas may alter to those presented in the assessment.

## **11.4 Method of Assessment**

11.4.1 The methodology adopted in this assessment involved the following key stages:

- determination of current baseline traffic and transport conditions;
- identification and assessment of the potential environmental effects associated with increased traffic levels;
- identification and description of the mitigation measures proposed to address any potential significant effects; and
- assessment of any residual effects post mitigation implementation.

### **Sensitivity of Receptor**

11.4.2 The IEMA 'Guidelines for Environmental Impact Assessment' (2005) notes that the separate 'Guidelines for the Environmental Assessment of Road Traffic' (1993) document should be used to characterise the environmental traffic and transport effects (off-site effects) and the assessment of significance of major new developments. The guidelines intend to complement professional judgement and the experience of trained assessors.

11.4.3 In terms of traffic and transport impacts, the receptors are the users of the roads within the Study Area and the locations through which those roads pass.

11.4.4 The IEMA Guidelines include guidance on how the sensitivity of receptors should be assessed. Using this as a base, professional judgement was used to develop a classification of sensitivity for users based on the characteristics of roads and locations. This is summarised in **Table 11.2**.

Receptor	Sensitivity			
	High	Medium	Low	Negligible
User of Roads	Where the road is a minor rural road, not constructed to accommodate frequent use by HGVs. Includes roads with traffic control signals, waiting and loading restrictions, traffic calming measures.	Where the road is a local A or B class road, capable of regular use by HGV traffic. Includes roads where there is some traffic calming or traffic management measures.	Where the road is Trunk or A-class, constructed to accommodate significant HGV composition. Includes roads with little or no traffic calming or traffic management measures.	Where roads have no adjacent settlements. Includes new strategic trunk roads that would be little affected by additional traffic and suitable for Abnormal Loads and new strategic trunk road junctions capable of accommodating Abnormal Loads.
Users/ Residents of Locations	Where a location is a large rural settlement containing a high number of community and public services and facilities.	Where a location is an intermediate sized rural settlement, containing some community or public facilities and services.	Where a location is a small rural settlement, few community or public facilities or services.	Where a location includes individual dwellings or scattered settlements with no facilities.

11.4.5 Where a road passes through a location, users are considered subject to the highest level of sensitivity defined either by the road or local characterisations.

### Magnitude of Impact

11.4.6 Detailed consideration of impact magnitude is a standard component of the Traffic and Transport assessment. The following rules, also taken from the IEMA Guidelines are used to determine which links within the Study Area should be considered for detailed assessment:

- Rule 1 – include highway links where traffic flows are predicted to increase by more than 30% (or where the number of heavy goods vehicles is predicted to increase by more than 30%); and
- Rule 2 – include any other specifically sensitive areas where traffic flows are predicted to increase by 10% or more.

11.4.7 The IEMA Guidelines identify the key impacts that are most important when assessing the magnitude of traffic impacts from an individual development; the impacts and levels of magnitude are discussed below:

- Severance – the IEMA Guidelines states that “severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery.” Further, “Changes in traffic of 30%, 60%, and 90% are regarded as producing ‘slight’, ‘moderate’, and ‘substantial’ [or minor, moderate, and major] changes in severance respectively”. However, the Guidelines acknowledge that “the measurement and prediction of severance is extremely difficult”. (Para 4.28);
- Driver delay – the IEMA Guidelines note that these delays are likely to be “significant [or major] when the traffic on the network surrounding the development is already at, or close to, the capacity of the system.” (Para 4.32)

- Pedestrian delay – the delay to pedestrians, as with driver delay, is likely only to be major when the traffic on the network surrounding the development is already at, or close to, the capacity of the system. An increase in total traffic of approximately 30% can double the delay experienced by pedestrians attempting to cross the road and would be considered major;
- Pedestrian amenity – the IEMA Guidelines suggests that a tentative threshold for judging the significance of changes in pedestrian amenity would be where the traffic flow (or its lorry component) is halved or doubled (Para 4.39). It is therefore considered that a change in the traffic flow of -50% or +100% would produce a major change in pedestrian amenity;
- Fear and intimidation – there are no commonly agreed thresholds for estimating levels of fear and intimidation, from known traffic and physical conditions. However, as the impact is considered to be sensitive to traffic flow, changes in traffic flow of 30%, 60% and 90% are regarded as producing minor, moderate and major changes respectively; and
- Accidents and safety – professional judgement would be used to assess the implications of local circumstances, or factors which may elevate or lessen risks of accidents.

11.4.8 While not specifically identified as more vulnerable road users, cyclists are considered in similar terms to pedestrians.

### Cumulative Effects

11.4.9 In traffic and transport terms, only developments that have been consented can be assumed to be cumulative developments. A sensitivity review is undertaken as part of the cumulative assessment to inform the planning authorities of possible issues if all consented developments were to be constructed concurrently.

### Significance Criteria

11.4.10 To determine the overall significance of effects, the results from the receptor sensitivity and magnitude of change assessments are correlated and classified using a scale set out in Table 2.4 of Volume 11, Section 2, Part 5 of the Design Manual for Roads and Bridges (DMRB) and summarised in **Table 11.3**.

11.4.11 The DMRB defines the potential changes in magnitude of effect as follows:

- Large: These effects are considered to be material in the decision making process;
- Moderate: These effects may be important but are not likely to be material factors in decision making. The cumulative effects of such factors may influence decision-making if they lead to an increase in the overall adverse effect on a receptor;
- Slight: These effects may be raised as local factors. They are unlikely to be critical in the decision-making process, but are important in improving the subsequent design of the project; and
- Neutral: No effects or those that are imperceptible.

Receptor Sensitivity	Magnitude of Impacts			
	Major	Moderate	Minor	Negligible
High	Large	Large/Moderate	Moderate/Slight	Slight
Medium	Large/Moderate	Moderate	Slight	Slight/Neutral
Low	Moderate/Slight	Slight	Slight	Slight/Neutral
Negligible	Slight	Slight	Slight/Neutral	Neutral

11.4.12 In terms of the EIA Regulations, effects would be considered of significance where they are assessed to be large or moderate. Where an effect could be one of Large/Moderate or Moderate/Slight, professional judgement would be used to determine which option should be applicable.

## 11.5 Baseline Conditions

### Current Baseline

#### Road Access

11.5.1 The A859 is the main road which connects Stornoway, in the north-east, to Rodel, in the south. The A859 is a single carriageway which is generally subject to the national speed limit, however, this reduces going through towns and villages and is maintained by CnES.

#### Existing Traffic Conditions

11.5.2 In order to assess the impact of development traffic on the Study Area, traffic data was obtained from existing traffic sources from the UK Department for Transport (DfT) database. These sites were identified as being areas where sensitive receptors on the construction access route would be located.

11.5.3 The locations for the DfT traffic survey sites are as follows:

1. A859, South of Stornoway (Count Site Reference 91285);
2. A859, East of Kinloch (Count Site Reference 80413);
3. A859, South of Kintarvie (Count Site Reference 30948); and
4. A859, Tarbert (Count Site Reference 10948).

11.5.4 The locations of the traffic survey sites are shown in **Figure 11.2: Traffic Count Locations (EIAR Volume 3a)**.

11.5.5 The traffic counters allowed the traffic flows to be split into vehicle classes and the data has been summarised into cars / light good vehicles (LGVs) and heavy goods vehicles (HGVs) (all goods vehicles >3.5 tonnes gross maximum weight, as well as buses for the purpose of this assessment).

11.5.6 Traffic count data for 2019 was obtained from the count site information, as this traffic data remains unaffected by the travel restrictions associated with the COVID-19 pandemic. A National Road Traffic Forecast (NRTF) low growth factor of 1.022 was applied to the 2019 flows to forecast 2022 flows.

11.5.7 **Table 11.4** summarises the 24-hour average daily traffic data forecast at the count sites.

No.	Survey Location	Cars & LGV	HGV	Total
1	A859, South of Stornoway	3,604	162	3,766
2	A859, East of Kinloch	1,842	346	2,188
3	A859, South of Kintarvie	806	68	875
4	A859, Tarbert	980	406	1,386

Please note variances may occur due to rounding

#### Accident Data

11.5.8 Road traffic accident traffic for the period commencing 01 January 2016 to 30 June 2021 was obtained from the online resource crashmap.co.uk which uses data collected by the police about road traffic crashes occurring on British roads where someone is injured (it should be noted that there is only provisional data currently available for 2021, covering January to June 2021).

11.5.9 The statistics are categorised into three categories, namely "Slight" for damage only incidents, "Serious" for injury accidents and "Fatal" for accidents that result in a death. **Table 11.5**, **Table 11.6** and **Table 11.7** summarise the



accidents noted in the Study Area and the locations are presented in **Figure 11.3: Accident Locations (EIAR Volume 3a)**.

Accident Severity	Number of Recorded Incidents
Slight	14
Serious	7
Fatal	1

11.5.10 There are a total of 22 recorded incidents along the A859, within the Study Area within the survey period. A summary of the casualty types is presented in **Table 11.6** and the types of vehicles involved in the accidents are presented in **Table 11.7**.

Accident Severity	Cyclist	Child	Motorcyclist	Pedestrian	Car Driver / Passenger
Slight	0	1	2	0	14
Serious	0	0	1	0	5
Fatal	0	0	0	0	0

Accident Severity	Cyclist	Motorcycle	Car	HGV	Bus	Young Driver
Slight	0	2	14	1	0	1
Serious	0	1	5	0	0	2
Fatal	0	0	0	1	0	0

11.5.11 Two accidents were recorded near a bend in close proximity to each other along the A859, to the south of Loch Ulapuil. Both of the accidents were classified as slight and involved cars.

11.5.12 Three accidents were recorded within approximately 250 m of each other to the north-west of Loch Breugach. All of the accidents were classified as slight and involved cars. One of the accidents also included a motorcycle.

#### *Active Travel Links*

11.5.13 A review of the Core Paths Plan on the CnES website (<https://www.cne-siar.gov.uk/leisure-sport-and-culture/community-life-and-leisure/countryside-access/core-paths-planning-in-the-hebrides/>) indicates that Core Path 10: Miabhaig - Bhiogiadail Route, Core Path 11: Urgha - Maraig PROW, Core Path 13: Direcleit Circular Route and Core Path 14: Seilebost - Aird Mhighe Circular PROW are located within the vicinity of the Proposed Development.

11.5.14 A review of the National Cycle Network map (<https://www.sustrans.org.uk/national-cycle-network>) indicates that there are no National Cycle Routes along the A859 within the Study Area, however, the A859 is listed as an “on-road route not on the National Cycle Network”.

## 11.6 Future Baseline

- 11.6.1 Construction of the Proposed Development could commence in 2024 if consent is granted and is anticipated to take up to 30 months depending on weather conditions and ecological decisions. Energisation is scheduled for 2026.
- 11.6.2 To assess the likely effects during the construction and typical operational phase, base year traffic flows were determined by applying a NRTF low growth factor to the surveyed traffic flows.
- 11.6.3 The NRTF low growth factor for 2022 to 2024 is 1.011. These factors were applied to the 2022 traffic data in Table 11.4 to estimate the 2024 Baseline traffic flows.
- 11.6.4 Committed development flows associated with Muaitheabhal Wind Farm (including the Main Site, the Eastern Extension and the Southern Extension) have been added to the 2024 Baseline flows in order to estimate the revised baseline traffic flows which are shown in **Table 11.8**. These will be used in the Construction Peak Traffic Impact Assessment.

**Table 11.6: 24-hour Average Daily Traffic Data (Baseline flows plus Committed Development flows) (2024)**

No.	Survey Location	Cars & LGV	HGV	Total
1	A859, South of Stornoway	3,775	189	3,964
2	A859, East of Kinloch	1,994	375	2,369
3	A859, South of Kintarvie	947	94	1,041
4	A859, Tarbert	1,123	435	1,558

Please note variances may occur due to rounding

- 11.6.5 If the Proposed Development does not proceed, traffic growth will occur and the links within the Study Area would experience increased traffic flows resulting from other development pressures, tourism traffic and population flows.

### Sensitive Receptors

- 11.6.6 **Table 11.9** outlines sensitive receptors carried through to the assessment.

**Table 11.7: Summary of Receptor Sensitivity**

Receptor	Rationale	Receptor Sensitivity
A859 Users –between the south of Stornoway and Leurbost	Where the road is a local A or B class road, capable of regular use by HGV traffic.	Medium
A859 Users –between Leurbost and Kintarvie	Where the road is a local A or B class road, capable of regular use by HGV traffic.	Medium
A859 Users –between Kintarvie and Aird Aisaig	Where the road is a local A or B class road, capable of regular use by HGV traffic.	Medium
A859 Users –between Aird Aisaig and Grose Clett	Where the road is a local A or B class road, capable of regular use by HGV traffic.	Medium
Residents along the A859	Where a location includes individual dwellings or scattered settlements with no facilities.	Negligible
Residents of Leurbost (including visitors to Langabhat Medical Practice)	Where a location is a small rural settlement, few community or public facilities or services.	Low

Residents of Balallan / Kinloch	Where a location is a small rural settlement, few community or public facilities or services	Low
Residents of Tarbert	Where a location is an intermediate sized rural settlement, containing some community or public facilities and services.	Medium
Core Paths	Minor path used by walkers and cyclists, not constructed to accommodate HGV traffic flows.	High

## 11.7 Assessment of Effects

11.7.1 The assessment is based upon the construction effects that may occur within the Study Area illustrated in **Figure 11.4: Construction Traffic Access Routes**. In order to assess the effects, it is necessary to determine the likely traffic generation associated with the construction phase of Proposed Development.

11.7.2 During the construction period, the following traffic will require access to the Site:

- Staff transport, in either cars or staff minibuses; and
- Construction equipment and materials, deliveries of machinery and supplies such as concrete, cabling and crushed rock.

11.7.3 The Applicant has undertaken a preliminary design of the Proposed Development and has advised on likely traffic movements based upon their recent experience of similar developments and on bulk materials needed to be imported.

11.7.4 Daily construction traffic estimates have been developed and are detailed in **Technical Appendix 11.1 (EIAR Volume 4)**. The peak of construction activity occurs in Month 25 of the programme and results in 50 daily movements (25 inbound and 25 outbound movements per day). Of these, 30 movements are associated with HGVs moving equipment to mobilise sections of the works as well as the import of construction materials. The remaining 20 movements are associated with construction staff arriving at and departing from the Site.

11.7.5 A review of committed development traffic generation has been undertaken for sites that have planning consent but that have not yet been constructed. A wide range of energy and non-energy developments has been considered. Of these, only Muaitheabhal Wind Farm (including Main Site, the Eastern Extension and the Southern Extension) can be considered as committed. As this site has planning consent and could be constructed at the same time as the Proposed Development, its peak construction traffic flows were included in the baseline traffic flows.

11.7.6 To estimate the total trips through the Study Area during the peak of the construction phase, traffic was distributed through the network and combined with the 2024 Baseline traffic data. The resulting figures were compared with the weekday 2024 Baseline traffic to provide a percentage change in movements. The traffic impact summary is provided in **Table 11.10**.

No.	Survey Location	Cars & LGV	HGV	Total	Cars & LGV % Increase	HGV % Increase	Total % Increase
1	A859, South of Stornoway	3,795	219	4,014	0.5%	15.8%	1.3%
2	A859, East of Kinloch	2,014	405	2,419	1.0%	8.0%	2.1%

**Table 11.8: Traffic Impact Summary**

3	A859, South of Kintarvie	967	124	1,091	2.1%	31.8%	4.8%
4	A859, Tarbert	1,143	465	1,608	1.8%	6.9%	3.2%

Please note variances may occur due to rounding

11.7.7 The total traffic movements are not anticipated to increase by more than 30% along the Study Area. It is anticipated that HGVs will increase by 31.8% along the A859, to the south of Kintarvie; however, it should be noted that whilst this increase is statistically significant, it is generally caused by the relatively low baseline traffic flows and will see an additional 30 HGV journeys per day (15 inbound trips and 15 outbound trips). This represents an average of approximately three journeys every hour during construction activities, which is not considered significant in overall traffic terms.

11.7.8 It should also be noted the construction phase is transitory in nature and the peak of construction activities is short-lived.

11.7.9 A review of existing road capacity has been undertaken using the Design Manual for Roads and Bridges, Volume 15, Part 5 “The NESAs Manual”. The theoretical road capacity has been estimated for each of the road links for a 12-hour period that makes up the Study Area. The results are summarised in **Table 11.11**.

**Table 11.9: Traffic Impact Summary**

No.	Survey Location	2024 Baseline Flow	Theoretical Road Capacity	2024 Base + Development Flows	Spare Road Capacity %
1	A859, South of Stornoway	3,964	21,600	4,014	81%
2	A859, East of Kinloch	2,369	19,200	2,419	87%
3	A859, South of Kintarvie	1,041	19,200	1,091	94%
4	A859, Tarbert	1,558	19,200	1,608	92%

Please note variances may occur due to rounding

11.7.10 The results indicate there are no road capacity issues with the combined development and ample spare capacity exists within the trunk and local road network to accommodate construction phase traffic.

### Mitigation by Design

11.7.11 The access points will be designed in accordance with CnES standards and will feature compliant visibility splays in both directions.

11.7.12 Appropriate signage and traffic management measures to warn drivers of the new access points and turning construction traffic will be provided and a signage schedule will be agreed with CnES prior to works commencing.

### Potential Effects

#### *Potential Construction Effects*

11.7.13 The significance of the potential effects during construction has been determined using the rules and thresholds outlined previously. The following paragraphs summarise the significance of effect for sensitive receptors during the construction phase.

A859 Users

## Severance

11.7.14 The increase in total traffic flows is under 5% across the Study Area. With a receptor sensitivity of Medium, the likely effect is considered to be slight. The low level of construction traffic will not result in community severance across the A859. It is therefore considered that the magnitude of impacts is minor and the significance of effect is slight.

## Driver Delay

11.7.15 Following the addition of the Proposed Development's construction traffic, the spare road capacity of the A859 will be 81%. It is therefore considered that the magnitude of impacts is minor and the significance of effect is slight.

## Pedestrian Delay

11.7.16 Following the addition of the Proposed Development's construction traffic, there will still be ample spare capacity along the A859. It should also be noted that there are limited pedestrian desire lines along the majority of the road, so is highly unlikely that there is high demand to cross this link. It is therefore considered that the magnitude of impacts is minor and, the significance of effect is slight.

## Pedestrian Amenity

11.7.17 It is not anticipated that there is a large number of pedestrians using the road. With the traffic impact less than 5%, it is therefore considered that the magnitude of impacts is minor and the significance of effects is slight.

## Fear &amp; Intimidation

11.7.18 The total increase in traffic along the A859 is below 5%. The magnitude of impacts is therefore considered minor and significance of effect is therefore considered to be slight.

## Accidents &amp; Safety

11.7.19 A review of accidents along the A859 over a five year period did not highlight any accident trends across the Study Area. The magnitude of impacts is therefore considered minor and the significance of effect is considered slight.

Residents of Tarbert

## Severance

11.7.20 The increase in total traffic flows in the village is 3.2%. With a receptor sensitivity of Medium, the likely effect is considered to be slight. The low level of construction traffic will not result in community severance in Tarbert. It is therefore considered that the magnitude of impacts is minor and the significance of effect is slight.

## Driver Delay

11.7.21 Following the addition of the Proposed Development's construction traffic, the spare road capacity of the A859 in Tarbert will be 92%. It is therefore considered that the magnitude of impacts is minor and the significance of effect is slight.

## Pedestrian Delay

11.7.22 Following the addition of the Proposed Development's construction traffic, there will still be ample spare capacity along the A859 in Tarbert. It is therefore considered that the magnitude of impacts is minor and, the significance of effect is slight.

## Pedestrian Amenity

11.7.23 The increase in HGV traffic through Tarbert is less than 10%, below the threshold for normal daily variation. It is therefore considered that the magnitude of impacts is minor and the significance of effect is slight.

#### Fear & Intimidation

11.7.24 The total increase in traffic along the A859 in Tarbert is 3.2%. The magnitude of impacts is therefore considered minor and significance of effect is considered to be slight.

#### Accidents & Safety

11.7.25 A review of accidents along the A859 in Tarbert over a five year period did not any highlight accident trends across the Study Area. The magnitude of impacts is therefore considered minor and the significance of effect is considered slight.

#### Core Paths

##### Severance

11.7.26 Severance on the Core Path network may occur when construction traffic bisects the path network. The increase in traffic however is likely to be numerically low and, as such, any severance would be highly localised and short term. It is therefore considered that the magnitude of impacts is medium and, the significance of effect is moderate.

##### Driver Delay

11.7.27 There are no existing vehicle flows on the core paths. The magnitude of impacts is therefore considered minor and the significance of effect is considered neutral.

##### Pedestrian Delay

11.7.28 Delays may occur when construction traffic crosses a core path. The delay however is likely to be minimal as movements at individual crossings will be infrequent during the working day at each works location (five separate areas per day along the length of the works area). The magnitude of impacts is therefore considered to be minor and the significance of effect is considered slight.

##### Pedestrian Amenity

11.7.29 Amenity may be affected as loads cross the Core Path network. It is therefore considered that the magnitude of impacts is medium and, the significance of effect is moderate.

#### Fear & Intimidation

11.7.30 Traffic levels cross a Core Path at any one location will be relatively low. It is therefore considered that the magnitude of impacts is medium and, the significance of effect is moderate.

#### Accidents & Safety

11.7.31 A review of accidents across the Study Area over a five year period did not any highlight accident trends across the Study Area. The magnitude of impacts is therefore considered minor and the significance of effect is considered slight.

#### *Potential Operational Effects*

11.7.32 There are no potential operational effects associated with the Proposed Development relating to Traffic and Transport.

## 11.8 Mitigation

### Mitigation During Construction

11.8.1 The following measures would be implemented through a Construction Traffic Management Plan (CTMP) during the construction phase for the Proposed Development. The CTMP would be agreed with CnES prior to construction works commencing. The CTMP would include the following measures:

- Deliveries to Site shall be scheduled to the working times of the Site. Any deliveries to be made out with these working times would be reviewed on a case by case basis taking into account a number of factors including, time and impact on local community, noise and traffic disruption;
- Preparation of a Path Management Plan to minimise potential conflicts between path users and construction activities. This would include appropriate signage, diversions routes (if required), crossing facilities and warning signs;
- Tool box talks to assist construction staff in how to avoid conflicts with walkers and equestrians, including instructions on how to pass horses in safety;
- Use of scaffolds where the Proposed Development is to cross major roadways to allow cable stringing to occur in safety and to minimise traffic delays at locations as shown in **Figure 2.1: Proposed Development (EIAR Volume 3a)**;
- Adoption of a voluntary speed limit of 20 mph for all construction vehicles through Leurbost, Balallan, Kinloch and Tarbert villages;
- 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;
- Unless otherwise agreed with CnES, construction activities would in general be undertaken during daytime periods only. For weekdays, this would involve work between approximately 07:00 to 19:00 in the summer and 07:30 to 17:00 (or as daylight allows) in the winter. On Saturday the working hours would be approximately 07:00 to 17:00 in Summer and 0730 – 1700 in Winter. No construction will be permitted on Sundays;
- All reversing operations and the movement of plant/deliveries which will take place on-site will be supervised and controlled;
- Appropriate traffic management measures would be put in place on A859 in the vicinity of the access junctions to the Site in order to avoid conflict with general traffic, subject to the agreement of the roads authority. Typical measures would include HGV turning and crossing signs and / or banksmen at the site access and warning signs;
- The arrangements for Traffic Management (TM) will be communicated to the public and local community directly affected by construction traffic via the SSEN public liaison officer. Other methods of communication which may be implemented by the project team include letter drops to landowners in the immediate vicinity to planned TM works, online update notices communicated via SSEN website and local press releases;
- All visitors and new staff must undertake a Site induction. During the induction, personnel will be made aware of the Traffic Management Plan and Site rules; and
- All drivers would be required to attend an induction to include:
  - A tool box talk safety briefing;
  - The need for appropriate care and speed control;
  - A briefing on driver speed reduction agreements (to slow site traffic at sensitive locations through the villages); and
  - Identification of the required access routes and the controls to ensure no departure from these routes.

11.8.2 CnES may request that an agreement to cover the cost of abnormal wear on its network is made.

11.8.3 Video footage of the pre-construction phase condition of the construction vehicles route would be recorded to provide a baseline of the condition of the road prior to any construction work commencing. This baseline would inform any change in the road condition during the construction phase. Any necessary repairs would be coordinated with CnES's roads team. Any damage caused by traffic associated with the Proposed Development during the construction period that would be hazardous to public traffic would be repaired immediately.

- 11.8.4 Damage to road infrastructure caused directly by construction traffic would be made good and street furniture that is removed on a temporary basis would be fully reinstated. It is anticipated that a Section 96 Agreement will be developed with CnES to ensure that the road network does not deteriorate as a result of the proposed construction traffic.
- 11.8.5 There would be a regular road review and any debris and mud would be removed from the carriageway using an onsite road sweeper to ensure road safety for all road users, where works are located close a proposed access junction onto the A859.

### Mitigation During Operation

- 11.8.6 Given there are no potential operational effects associated with the Proposed Development relating to Traffic and Transport; therefore, no mitigation measures are proposed.

## 11.9 Residual Effects

### Residual Construction Effects

- 11.9.1 This section considers the assessment of traffic effects following the incorporation of the mitigation measures identified above.
- 11.9.2 **Table 11.12** summarises the assessment of residual effects identified as well as the proposed mitigation measures and how they will be implemented during the construction phase. **Table 11.12** shows that the residual effects are considered not significant following the implementation of the mitigation measures.
- 11.9.3 It should be noted that the assessment has focussed on the peak construction traffic activities and that the percentage increases noted are high, given the relatively low level of HGV traffic on the existing network.
- 11.9.4 The construction period is transitory in nature and all impacts will be short lived and temporary.

### Residual Operational Effects

- 11.9.5 No residual operational effects are associated with the Proposed Development.

## 11.10 Cumulative Effects

- 11.10.1 A review of cumulative developments has been undertaken. Only one development can be considered as committed and this has been accounted for in the 2024 baseline traffic flows. There are no further significant traffic generating developments that are considered as committed development at present.
- 11.10.2 Should a new development or associated development be consented following determination of the Proposed Development, then a planning condition can be imposed on that application to account for any cumulative traffic impacts on the Study Area, should the two developments be constructed simultaneously. The implementation and phrasing of such a condition would be determined by CnES.

## 11.11 Summary

- 11.11.1 The Proposed Development will lead to increased traffic volumes on the A859 during the construction phase. These will be of a temporary timescale and transitory in nature.
- 11.11.2 Existing traffic data established a base point for determining the impact during the construction phase and was factored to future levels to help determine the effect of construction traffic on the local road network.
- 11.11.3 The construction traffic would result in a temporary increase in traffic flows on the road network surrounding the Proposed Development. The maximum traffic effect associated with construction of the Proposed Development is an additional 20 car and LGV movements and 30 HGV movements per day.



11.11.4 An assessment of likely effect using IEMA guidelines has been undertaken. This determined that minor, non-significant effects could be expected along the A859 and within the village of Tarbert. Core path users would experience potentially significant effects prior to the implementation of a Path Management Plan.

11.11.5 With the implementation of appropriate mitigation, no significant residual effects are anticipated in respect of traffic and transport issues. The residual effects are all assessed to be not significant and, as they would occur during the construction phase only, they would be temporary and reversible.

<b>Table 11.12: Summary of Potential Significant Effects of the Proposed Development</b>			
<b>Likely Significant Effect</b>	<b>Mitigation Proposed</b>	<b>Means of Implementation</b>	<b>Outcome / Residual Effect</b>
<b>Construction Effects for A859 Users and Tarbert Residents</b>			
Severance	Improved signage, temporary signage and public information provision.	CTMP	Not significant
Driver delay	Improved signage, temporary signage and public information provision.	CTMP	Not significant
Pedestrian delay	Improved signage, temporary signage and public information provision.	CTMP	Not significant
Pedestrian amenity	Improved signage, temporary signage and public information provision.	CTMP	Not significant
Fear and intimidation	Improved signage, temporary signage and public information provision.	CTMP	Not significant
Accidents and safety	Access junctions with appropriate visibility splays and turning radii. Improved signage, traffic management and temporary signage.	CnES approved junction design and CTMP	Not significant
<b>Construction Effects for Core Path Users</b>			
Severance	Improved signage, temporary signage and public information provision.	Path Management plan within the CTMP	Not significant
Driver delay	None required	None required	Not significant
Pedestrian delay	Improved signage, temporary signage and public information provision.	Path Management plan within the CTMP	Not significant

<b>Table 11.12: Summary of Potential Significant Effects of the Proposed Development</b>			
Pedestrian amenity	Improved signage, temporary signage and public information provision.	Path Management plan within the CTMP	Not significant
Fear and intimidation	Improved signage, temporary signage and temporary crossing points over paths.	Path Management plan within the CTMP	Not significant
Accidents and safety	Improved signage, temporary signage and temporary crossing points over paths.	Path Management plan within the CTMP	Not significant
<b>Operation Effects</b>			
None	None	None	None
<b>Cumulative Construction Effects</b>			
None	None	None	None
<b>Cumulative Operation Effects</b>			
None	None	None	None

## 12. CUMULATIVE ASSESSMENT

### 12.1 Introduction

12.1.1 This chapter considers the potential cumulative environmental effects as a result of the Proposed Development in accordance with Schedule 4, paragraph 5(e) of the EIA Regulations.

12.1.2 As set out in **Chapter 5: Methodology (EIAR Volume 2)**, there are two aspects to the cumulative assessment which have been considered in this EIA report, inter-cumulative effects and intra-cumulative effect interactions.

12.1.3 The purpose of this chapter is to:

- provide a summary of the inter-cumulative effects reported in **Chapters 6-11, EIAR Volume 2**); and
- provide an assessment of whether the combination of multiple effects upon a common receptor (intra-cumulative) would result in an effect of greater significance than the individual effects alone.

### 12.2 Inter-Cumulative Effects

#### Other Developments

12.2.1 Inter-cumulative effects are the combined effect of the Proposed Development together with other reasonably foreseeable developments ('other developments'), taking into consideration effects at the Site including site preparation and earthworks, construction and operational phases.

12.2.2 A search for other developments was undertaken in July 2022. This considered developments recorded as consented (under construction or not yet constructed), those in planning, those within the public domain and those deemed reasonably foreseeable, within 10 km of the Proposed Development.

12.2.3 Statutory consultees including CnES, and NatureScot were consulted on the proposed list of other developments.

12.2.4 The list of cumulative developments considered in the EIA Report is provided in **Table 12.1**. The location of the other developments (in relation to the Proposed Development) is shown, indicatively, in **Figure 12.1: Cumulative Developments, EIAR Volume 3a**.

<b>Table 12.1: Cumulative Developments Considered in the 'Inter-Cumulative' Assessment</b>			
<b>Name of Development</b>	<b>Planning Application / ECU Reference</b>	<b>Description</b>	<b>Status</b>
<b>Wind Farms</b>			
Aignish Community wind farm	18/00350/SCO_L	Wind farm comprising 2 turbines at a maximum tip height of 145 m.	In Planning
Arnish Moor	Unknown	Wind farm comprising 3 turbines at a maximum tip height of 72 m.	Operational
Beinn Ghrideag	Unknown	Wind farm comprising 3 turbines at a maximum tip height of 125 m.	Operational
Beinn Thulabaigh	19/00209/PPW	Single wind turbine at a maximum tip height of 145 m.	Consented
Bridge Cottages	12/00117/SCR_L	Single wind turbine with hub height of 18 m and rotor diameter of 30.9 m.	Operational
Creed	Unknown	Single wind turbine with	Operational

**Table 12.1: Cumulative Developments Considered in the 'Inter-Cumulative' Assessment**

Name of Development	Planning Application / ECU Reference	Description	Status
		maximum tip height of 61.1 m.	
Lemreway Wind Turbine	Unknown	Single wind turbine with tip height of 41.8 m.	Operational
Monan Hill Wind Turbines	06/00290/FUL	Wind farm comprising 3 turbines at a maximum tip height of 75 m.	Operational
Muaitheabhal Wind Farm	ECU00005222	Wind Farm comprising 33 turbines at a maximum tip height of 145 m and a generation capacity of >50 MW.	Consented
Muaitheabhal East Extension	EC000005223	Wind Farm extension comprising 6 turbines at a maximum tip height of 150 m.	Consented
Muaitheabhal South Extension	ECU00002096	Wind Farm extension comprising 12 turbines at a maximum tip height of 145/130 m.	Consented
Pentland Road Wind Farm	Unknown	Wind Farm comprising 6 turbines of unknown size.	Operational
Stornoway Wind Farm	ECU00001850	Wind Farm comprising 35 turbines at a maximum tip height of 150/136 m and a generation capacity of >50 MW.	Consented
<b>Existing Overhead Line Infrastructure</b>			
Existing 33 kV OHL network	Unknown	There is a network of existing 33 kV OHLs in proximity to the Proposed Development, with poles of around 9 m AOD in height.	Operational
Existing 11 kV OHL network	Unknown	There is a network of existing 11 kV OHLs in proximity to the Proposed Development, with poles of around 9 m AOD in height.	Operational

### Assessment of Inter-Cumulative Effects

12.2.5 Inter-cumulative effects have been assessed within each of the Technical Assessments (Technical Chapters 6-11) and have therefore not been presented within this Chapter. However, a summary is provided given the nature and location of the cumulative schemes. Significant inter-cumulative effects are likely to arise in respect of the following:

- Loss of peatland habitat (primarily blanket bog and wet heath) as a result of the Proposed Development and other surrounding cumulative developments. Given the predicted significant effects on blanket bog for Stornoway Wind Farm and the Muaitheabhal Wind Farm and extensions, the loss of blanket bog and wet

health could result in **significant cumulative effects**, even though the effect of habitat loss for the Proposed Development in isolation is considered to be not significant.

### 12.3 Intra-Cumulative Effects

12.3.1 Intra-cumulative effects are the combined or synergistic effects caused by the combination of a number of effects on a particular receptor (taking into consideration effects at the site preparation and earthworks, construction, and operational phases), which may collectively cause a more significant effect than individually.

12.3.2 The approach to the assessment of the intra-cumulative effects considers the changes in baseline conditions at common sensitive receptors (i.e., those receptors that have been assessed by more than one technical topic) due to the Proposed Development. The assessment is based upon residual effects only (considered to be effects of minor or greater significance i.e., excluding negligible effects).

12.3.3 An overall assessment of the cumulative effects on identified common sensitive receptors has been made using professional judgement and the technical information provided in **Chapters 6-11 (EIAR Volume 2)**.

12.3.4 The residual effects of the individual topics on common sensitive receptors during construction are presented **Table 12.3**, and are assessed in **Table 12.4**. The residual effects of the individual topics on common sensitive receptors during operation are presented in **Table 12.5**.

12.3.5 Only residual effects with the potential for intra-cumulative effects are considered, i.e., where there are common sensitive receptors with other distinctly different topics. Similarly, topics are excluded from the assessment where it is considered that there is no potential for significant effects to occur during either construction or operation. On this basis, the following topics have been excluded from **Table 12.5**:

- Ecology; and
- Traffic and Transport.

12.3.6 Colour coding shown in **Table 12.2** has been used to indicate significance levels in **Table 12.3** and **Table 12.5**.

<b>Table 12.2: Colour Coding used to Define Significance Level</b>	
	Significant (major adverse residual impact)
	Significant (major/moderate adverse residual impact)
	Not significant (moderate or minor adverse residual effect)
	Potential for Intra-Cumulative Effects

**Table 12.3: Intra-Cumulative Effects: Residual Effects on Common Receptors - Construction**

Likely Residual Effects		Receptors and Receptor Groups											
		Woodland	Sensitive Habitats (including peatland and GWDTE; excluding woodland)	Private Water Supplies	Surface Water and Groundwater (inc Drinking Water Protection Areas)	SPA and Non SPA Bird Species	Transport Routes	Landscape Fabric	Landscape character areas, designations and classifications	Recreational Receptors	Residents and Settlements	Archaeological Deposits	Designated and Non-Designated Built Heritage Assets
SLVIA/RVAA (Chapter 6)	Residual impacts to landscape fabric, designated landscapes and visual amenity												
Cultural Heritage and Archaeology (Chapter 7)	Disturbance to a heritage asset												
Ecology (Chapter 8)	Disturbance, degradation and loss of habitats												
Ornithology (Chapter 9)	Destruction or Disturbance of Species												
Hydrology, Hydrogeology, Geology and Soils (Chapter 10)	Impacts to water quality and indirect effects on aquatic habitats and species from accidental chemical pollution, sediment mobilisation, and watercourse crossings Alteration to surface water flows and runoff												
	Impacts to water quality of private water supplies												
Traffic and Transport (Chapter 11)	Impacts from increased traffic flows (severance, driver delay, pedestrian delay and amenity, fear and intimidation, accidents and safety)												
Potential for Intra-Cumulative Effects		No	Yes	No	No	No	No	No	No	Yes	Yes	No	No

## Assessment of Intra-Cumulative Effects - Construction

Table 12.4: Intra-Cumulative Effects Assessment of Combined Effects Interactions - Construction					
Receptor	Chapter/Topic	Residual Effects	Residual Significance in chapter	Combined Effects Assessment Significance	Overall Effect
Sensitive habitats, including peatland and GWDTE, excluding woodland	Chapter 8: Ecology	Permanent habitat loss would occur in peatlands and potential GWDTEs due to the excavation of pole bases but this effect is considered to be of low magnitude due to the small footprint involved.	Not significant	Peatland and potential GWDTE habitats would experience low magnitude impacts in terms of habitat loss and may experience temporary changes to the hydrological regime. However, this would be managed via implementation of the CEMP and impacts are predicted to be negligible.	The overall combined effect is predicted to be temporary <b>Minor Adverse (not significant)</b>
	Chapter 10: Hydrology, Hydrogeology, Geology and Soils	Through the implementation of mitigation, via the CEMP, to maintain water quality and the quantity of contribution to sensitive habitats (which are not considered groundwater dependent), the residual impact upon habitats of low sensitivity would be negligible.	Not significant		
Recreational Receptors	Chapter 6: SLVIA	Residual impacts to visual amenity are predicted; however, these have been reduced via embedded mitigation including location of the pole structures to reduce the visibility and prominence of the Proposed Development from key sensitive receptor locations, including settlements, tourist/ scenic routes and recreational routes.	Not significant	Recreational receptors would experience temporary low magnitude impacts to visual amenity and temporary impacts associated with increased traffic flows during the construction phase of the Proposed Development, which would be managed by implementation of the CTMP. Impacts are therefore predicted to be minor.	The overall combined effect is predicted to be temporary <b>Minor Adverse (not significant)</b>
	Chapter 11: Traffic and Transport	Potential impacts from increased traffic flows (severance, driver delay, pedestrian delay and amenity, fear and intimidation, accidents and safety) are predicted; however, mitigation is proposed in the form of a Path Management plan to be implemented via the CTMP.	Not significant		
Residents and settlements	Chapter 6: SLVIA	Residual impacts to visual amenity are predicted; however, these have been reduced via embedded mitigation including location of the pole structures to reduce the visibility and prominence of the Proposed Development from key sensitive receptor locations, including settlements, tourist/ scenic routes and recreational routes.	Not significant	Residential receptors would experience temporary low magnitude impacts to visual amenity and temporary impacts associated with increased traffic flows during the construction phase of the Proposed Development, which would be managed by implementation of the CTMP. Impacts are therefore predicted to be minor.	The overall combined effect is predicted to be temporary <b>Minor Adverse (not significant)</b>
	Chapter 11: Traffic and Transport	Potential impacts from increased traffic flows (severance, driver delay, pedestrian delay and amenity, fear and intimidation, accidents and safety) are predicted; however, potential impacts would be managed via the CTMP.	Not significant		

<b>Likely Residual Effects</b>		<b>Receptor and Receptor Groups</b>							
		<b>SPA and Non-SPA Bird Species</b>	<b>Surface water and groundwater</b>	<b>Landscape character</b>	<b>Landscape Designations and Classifications</b>	<b>Residential Properties and Settlements</b>	<b>Recreational Receptors</b>	<b>Road Users</b>	<b>Designated and Non-Designated Built Heritage Assets</b>
LVIA/RVAA (Chapter 6)	Visual impacts to landscape fabric, designated landscapes and visual amenity								
Cultural Heritage and Archaeology (Chapter 7)	Impacts to setting of heritage assets								
Ornithology (Chapter 9)	Collision risk								
Hydrology, Hydrogeology, Geology and Soils (Chapter 10)	Chemical Pollution and Sedimentation Alteration to surface water flows and runoff								
Potential for Intra-Cumulative Effects		No	No	No	No	No	No	No	No



### Assessment of Intra-Cumulative Effects

#### *Construction*

12.3.7 The potential for intra-cumulative effects during the construction phase of the Proposed Development has been identified in respect of the following receptors, as illustrated in **Table 12.3**:

- sensitive habitats, including GWDTE and peatland;
- recreational receptors; and
- residents and settlements.

12.3.8 No significant intra-cumulative effects have been identified.

#### *Operation*

12.3.9 No potential for intra-cumulative effects during the operational phase of the Proposed Development has been identified, as illustrated in **Table 12.4**:

## 13. SCHEDULE OF ENVIRONMENTAL MITIGATION

### 13.1 Introduction

13.1.1 The purpose of this Chapter is to provide a summary of mitigation measures and good practice environmental management commitments proposed throughout this EIAR (**Chapters 6-11**) to avoid, reduce, or offset the potential effects of the Proposed Development on the receiving environment.

13.1.2 Embedded mitigation (including the Applicant's General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs)) has been incorporated into and assessed as part of the Proposed Development and therefore is not listed here. Further information on embedded mitigation is provided in **Chapter 2: Proposed Development Description (EIAR Volume 2)**.

13.1.3 The majority of the pre-construction and construction phase mitigation would be delivered through the site-specific Construction Environmental Management Plan (CEMP). Further detail on specific mitigation measures to be included in the CEMP is contained in each of the technical chapters, where relevant.

13.1.4 **Table 13.1** provides a summary of those additional mitigation measures and good practice commitments identified throughout the EIAR.

13.1.5 The following mitigation reference codes are used in **Table 13.1**:

- L – Landscape and Visual Impact
- C – Cultural Heritage
- E - Ecology
- O - Ornithology
- H – Hydrology, Hydrogeology, Geology and Soils
- T – Traffic and Transport

<b>Table 13.1: Schedule of Environmental Mitigation Measures</b>					
<b>Ref.</b>	<b>Issue</b>	<b>Mitigation/Monitoring Response</b>	<b>EIAR Reference</b>	<b>Responsibility</b>	<b>Timing</b>
<b>Seascape, Landscape and Visual Impact Assessment (SLVIA) (Chapter 6)</b>					
L1	Mitigation During Construction	Standard precautionary measures would be adopted in order to minimise potential landscape and visual effects (including restriction of working areas, materials storage requirements, reinstatement of excavations and other temporary works areas)	Section 6.7 EIAR Volume 2	Appointed Contractor	During Construction
L2	Mitigation During Operation	<p>Mitigation of operational effects is primarily a matter of the siting/ alignment and design of different aspects of the Proposed Development, and as such constitutes embedded mitigation.</p> <p>This has involved a staged process including a Red Amber Green (RAG) Assessment to determine a suitable alignment and design that takes into consideration cost considerations, technical, and environmental constraints and opportunities. Details of the key design drivers and decisions made during the design of the Proposed Development are discussed in <b>Chapter 2: Description of the Proposed Development</b> and <b>Chapter 3: Consideration of Alternatives (EIAR Volume 2)</b>.</p> <p>Landscape and visual considerations, such as the existing landscape and visual baseline context as well as published guidance, were key to the design development. Those pertaining to the siting and design of the Proposed Development are summarised below:</p> <ul style="list-style-type: none"> <li>• The Proposed Development is located outwith areas subject to nationally recognised landscape designations or classifications such as Wild Land Areas (WLAs), and away from major settlements where possible and other concentrations of sensitive receptors;</li> <li>• Preferential use of existing tracks (where possible) throughout the overhead line (OHL) corridor to minimise effects associated with this aspect of the Proposed Development;</li> <li>• Where possible, poles have been located at low elevations where they would be backclothed by topography, thereby avoiding skylining the Proposed Development in key views;</li> <li>• Where possible, poles have been located to avoid interrupting views of key landscape features such as An Cliseam and various other elevated summits within the SLVIA Study Area;</li> <li>• Poles have been located away from distinctive features, scale and forms which would be compromised;</li> <li>• In larger scale upland moorland (such as the Boggy Moorland LCT), locations are more capable of accommodating transmission lines than those within small scale landscapes;</li> <li>• The Proposed Development is located within a landscape that is already undergoing change/ modification, and which contains existing or consented development (such as OHL and wind energy development) and/ or other forms of large-scale development;</li> <li>• Poles have been located to reduce the visibility and prominence of the Proposed Development from key sensitive receptor locations, including settlement (such as Ardhasaig), tourist / scenic routes and recreational routes within the Study Area, where possible; and</li> <li>• The trident poles specified are of a size that would be suitable to the LCTs which the Proposed Development traverses, in order to ensure that the Proposed Development would have limited impacts upon the perceived size and scale of any landscape features.</li> </ul>	Section 6.7 EIAR Volume 2	The Applicant / Appointed Contractor	During Operation
<b>Cultural Heritage (Chapter 7)</b>					
C1	Disturbance/damage to non-designated heritage assets during construction	<p><b>Archaeological Contractor</b></p> <p>A professionally qualified Archaeological Contractor would be appointed to act as an Archaeological Clerk of Works (ACoW) for the duration of the development works (including forestry felling works and during the construction phase).</p> <p><b>Preservation in Situ</b></p> <p>Should micro-siting of the OHL be required, associated forestry felling works, poles and associated infrastructure would be located, where possible, away from heritage assets.</p> <p>Heritage assets would be excluded from construction working areas, ground-breaking works at proposed pole positions, and construction access tracks, as far as reasonably practicable and as advised by the appointed ACoW.</p> <p>Known heritage assets and archaeologically sensitive areas, would not be used for storage of material or as parking areas for vehicles or machinery.</p> <p>Where linear assets survive as upstanding features (principally field banks and drystone walls) access tracks would be routed through any existing gates or through broken or less well-preserved sections of banks or walls wherever possible, within the consented Limit of Deviation (LOD). Disturbance to field banks, walls, relict rig and furrow cultivation remains, and relict peat cuttings would be kept to the minimum necessary to facilitate the Proposed Development, to ensure that most of the remains would be retained intact.</p> <p>The following heritage assets would be marked out for avoidance during the construction phase:</p> <ul style="list-style-type: none"> <li>• Shieling huts (9a-b, 10, 11a, 11d, 33-35, 49, 50, and 68a-b)</li> <li>• Township elements (26b, 32a-d, 32f, 45d-h, 72j, 74e, 75a-b, 76f)</li> <li>• Structures (5 and 39)</li> </ul>	Section 7.7 EIAR Volume 2	The Applicant / Appointed Contractor	Pre-Construction / During Construction

**Table 13.1: Schedule of Environmental Mitigation Measures**

		<ul style="list-style-type: none"> <li>• Enclosures (28)</li> <li>• Clearance cairns (36)</li> </ul> <p>The assets would be identified by placing high visibility markers a minimum of 5 m from the outer limits of the visible remains, facing the working area. Construction contractors would be made aware of the need to avoid these assets during construction works and any markers would be removed upon completion of the Proposed Development.</p> <p>The upstanding/visual remains of two additional assets, comprising sections of linear bank (63 and 88), would be demarcated around the ends of the features, facing the working area, and avoided during construction works.</p> <p><b>Micrositing</b></p> <p>No micrositing would take place without prior consultation with the appointed ACoW. Any identified heritage asset or feature that falls within or close to a revised working area or access route would be marked out and avoided, as outlined above.</p> <p><b>Watching Briefs</b></p> <p>The Applicant would seek to agree the scope of the archaeological watching brief(s) with CnES in advance of development works (forestry felling activity and construction phase). The scope of the agreed works would be confirmed in a Written Scheme of Investigation (WSI) to be signed-off by CnES prior to commencement of the development work, including enabling works.</p> <p>Taking account of the avoidance through design, and the character of the identified cultural heritage baseline, it is recommended that watching briefs be carried out at the following locations:</p> <ul style="list-style-type: none"> <li>• Laxay township (22): where construction works and access tracks cross the head-dyke (22a) and lazy bed cultivation (22b). An archaeological watching brief would be carried out during any ground-breaking works across the turf head-dyke and cultivation furrows, to identify and record any potential surviving remains that may be encountered. Establishment of vehicular access across the area would also be monitored to ensure below-ground deposits are not disturbed or that any disturbance is kept to a minimum.</li> <li>• Balallan township (32): where construction works and access tracks cross any field banks (32e and 32g). An archaeological watching brief would be carried out during any ground-breaking works across the field banks, to identify and record any potential surviving remains that may be encountered.</li> <li>• Arivruaich township (45): where construction works and access tracks cross a field bank (45b) and associated cultivation furrows. An archaeological watching brief would be carried out during any ground-breaking works across the field bank and cultivation furrows, to identify and record any potential surviving remains that may be encountered.</li> <li>• Arivruaich cultivation (46): where open ground access tracks cross cultivation furrows south of a field dyke. If access across the furrows cannot be avoided, via access to the north of the dyke, establishment of the vehicular access route will be monitored to ensure minimal damage to the asset.</li> <li>• Ardvoirie preserved woodland (58): where construction works and access tracks cross an area of prehistoric woodland preserved in peat. An archaeological watching brief would be carried out during any ground-breaking works within the peat, to identify and record any surviving remains that may be encountered. Establishment of the open ground access route across the area would be monitored to record any archaeological remains or deposits that may be exposed.</li> <li>• Scaladale cultivation (64): where an open ground access track passes areas of lazy bed cultivation (64c) and crosses a field boundary (64b). An archaeological watching brief would be carried out during establishment of a vehicular access route to ensure minimal disturbance of cultivation furrows. In addition, an archaeological watching brief would be carried out during any ground-breaking required across the field boundary, to identify and record the structure of the field bank and any potential surviving remains that may be encountered.</li> <li>• Ardhasaig township (72): where construction works and open ground access tracks cross any field boundary banks (72h and 72i). An archaeological watching brief would be carried out during any ground-breaking works across the banks and during establishment of the access route, to identify and record any potential surviving remains that may be encountered.</li> <li>• Caolas-Na-Sgeir and Leachcan township (74): where construction works and open ground access cross two field banks (74a and 74b) and a head-dyke (74c). An archaeological watching brief would be carried out during any ground-breaking works and establishment of the access route across the banks and head-dyke, to identify and record any potential surviving remains that may be encountered.</li> <li>• West Tarbert township: where construction works and an open ground access track pass an enclosure (75b) in addition to crossing a head-dyke (75e). An archaeological watching brief would be carried out during any ground-breaking works and establishment of the access route, in proximity to these elements, to identify and record any potential surviving remains that may be encountered.</li> <li>• Tota Glas township (76): where construction works and open ground access cross several field dykes (76a-c and 76e) and a head-dyke (76g). An archaeological watching brief would be carried out during any ground-breaking works and establishment of the access route, across the dyke, to identify and record any potential surviving remains that may be encountered.</li> </ul>			
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**Table 13.1: Schedule of Environmental Mitigation Measures**

		<ul style="list-style-type: none"> <li>South of Tarbert: where construction works and associated access routes cross or pass field banks (84, 86 and 87). An archaeological watching brief would be carried out during any ground-breaking works and establishment of the access route, across the banks, to identify and record any potential surviving remains that may be encountered.</li> </ul> <p>If significant discoveries are made during the watching briefs and preservation in situ is not possible, provision would be made for an appropriate amount of investigation and recording to be agreed in writing with CnES.</p> <p>Based on the results of the desk-based study and the field survey, there are no other specific areas where construction works are expected to encounter buried archaeological remains. It has though, been assessed that there is a low to moderate potential for hitherto undiscovered archaeological remains to be present within the Inner Study Area and it may be that the CnES would require archaeological monitoring in areas other than those identified above. Therefore, if required under the terms of a condition of consent, the scope of any other required archaeological watching brief(s) would be agreed through consultation with CnES in advance of development works commencing and would be set out in the WSI.</p> <p><b>Post-Excavation Assessment and Reporting</b></p> <p>If new, archaeologically significant discoveries are made during archaeological monitoring, and it is not possible to preserve the discovered remains in situ, provision will be made for the excavation where necessary, of any archaeological deposits encountered. The provision will include the consequent production of written reports, on the findings, with post-excavation analysis and publication of the results of the works, where appropriate.</p> <p><b>Construction Guidelines</b></p> <p>Written guidelines will be set out in the WSI, outlining the need to avoid causing unnecessary damage to known heritage assets. The guidelines will set out arrangements for calling upon retained professional support if buried archaeological remains of potential archaeological interest (such as building remains, human remains, artefacts, etc.) should be discovered during any construction activities. The guidelines will make clear the legal responsibilities placed upon those who disturb artefacts or human remains.</p> <p><b>Monitoring</b></p> <p>Post-construction monitoring would be carried out to:</p> <ul style="list-style-type: none"> <li>check that marking out of heritage assets within the Proposed Development Site has been effective and that none of the heritage assets have been disturbed during forestry felling/construction works; and</li> <li>check that all markers have been removed from heritage assets following completion of the Proposed Development.</li> </ul>			
C2	Damage/disturbance to non-designated heritage assets during operation	Construction of any temporary access tracks for required maintenance during the operation of the Proposed Development would take into account cultural heritage assets based on the constraints mapping provided ( <b>EIAR Volume 3a: Figure 7.1a-j</b> ).	Section 7.7 EIAR Volume 2	The Applicant / Appointed Contractor	During Operation
<b>Ecology (Chapter 8)</b>					
E1	Woodland habitat loss	<p><b>Sensitive Felling and Compensatory Woodland Planting</b></p> <p>The permanent loss of woodland would be minimised, where possible, by undertaking crown reduction of tree canopies instead of felling and through a phased felling approach to fell a minimum width for construction with selective felling during operation and maintenance. Micrositing of access tracks and poles within the 60 m LOD would also be undertaken, where possible, to avoid felling. Retention of scrub/understorey layers in areas where existing tree cover doesn't breach safety clearances.</p>	Section 8.9 EIAR Volume 2; Appendix 8.2: Outline Habitat Management Plan, Technical Appendix 2.3: SHE Transmission General Environmental Management Plans (GEMP); and Technical Appendix 2.4: SHE Transmission Species Protection Plans (SPP), EIAR Volume 4.	ECoW and Appointed Contractor	During Construction
E2	Woodland habitat loss	The Applicant would seek to manage the operational corridor to encourage native scrub vegetation through natural regeneration and/or planting.	Section 8.9 EIAR Volume 2;	The Applicant / Appointed Contractor	During Operation
E2	Loss of peatland	<p><b>Habitat Reinstatement</b></p> <p>Reinstatement of areas of temporary infrastructure, to allow the recolonisation of natural habitats, particularly in areas of blanket bog, wet modified bog, wet heath and dry heath. Further details on the proposed approach to habitat reinstatement would be set out in the CEMP and the Principal Contractor would be required to provide a habitat reinstatement plan prior to the start of reinstatement works.</p> <p><b>Habitat Restoration</b></p> <p>Active restoration of peatland habitats to encourage the regeneration of degraded peatland habitats would be carried out through specific management interventions. Degraded peatland habitats are those that are reduced in quality. In order to account for the predicted</p>	Section 8.9 EIAR Volume 2; and Technical Appendix 8.2: Outline Habitat Management Plan.	ECoW and Appointed Contractor	Post Construction

<b>Table 13.1: Schedule of Environmental Mitigation Measures</b>				
		permanent loss and degradation of wet heath, blanket bog and wet modified bog, a minimum of 0.6 ha of peatland would be restored off-site in areas of modified bog that no longer contain a significant proportion of peat-forming vegetation. The overall aim would be to restore a larger area of peatland than the area lost. As a good practice measure and in order to account for the area of blanket bog and wet modified bog being temporarily lost and degraded as a result of the Proposed Development, active restoration of reinstated peatland would also be carried out where possible. This would compensate for the permanent and temporary loss and modification of peatland as a result of the Proposed Development.		
E3	Impacts to Protected Species	<p><b>Pre-Construction Protected Species Survey</b></p> <p>Species Protection Plans (SPPs) would be followed during construction of the Proposed Development. In implementing the SPPs, a pre-construction protected species survey would be undertaken as close to the construction period as possible, and no more than three months before the start of works. The protected species surveys undertaken to inform the EIAR can be used to inform the pre-construction surveys. A suitably qualified ecologist would be appointed to undertake this survey.</p> <p><b>Protected Species Enhancements</b></p> <p>The opportunity exists to enhance the field Survey Area for slow worm. The provision of artificial refugia could have a beneficial effect by providing further sheltering opportunities.</p>	Section 8.9 EIAR Volume 2; Technical Appendix 2.4: SHE Transmission Species Protection Plans (SPP), EIAR Volume 4 Appendix 8.2: Outline Habitat Management Plan	Appointed Contractor Pre-Construction / During Construction
E4	Hydrological connectivity	<p>Suitable drainage and surface water measures would be used to maintain hydrological connectivity in peatland habitats and in Groundwater Dependent Terrestrial Ecosystems (GWDTEs), including measures such as diverting drainage around working areas and maintaining hydrological connectivity in track upgrades by using small diameter pipes in the sub-base. A floating track construction would be used through peatlands and GWDTEs where low-ground-pressure vehicles cannot be used alone. The track design would have due regard to key principles set out in the joint SNH/FLS (previously Forestry Commission Scotland (FCS)) guide to floating roads on peat. Where there is no clearly defined channel flow through GWDTEs, track construction would use a floating construction that incorporates measures such as a porous granular rock fill blanket, non-alkaline porous layer and perforated pipes to maintain the flow connectivity across tracks.</p> <p>Where pole excavations are required within a 250 m buffer zone, up gradient of identified GWDTEs, the quality and quantity of the groundwater that feeds the GWDTEs downstream from the excavations would be maintained by over-pumping and dewatering of excavations discharged to ground (via suitable pollution prevention measures) in a suitable location close to the excavation.</p> <p>Greenfield run-off (i.e. non-silty surface water flow that has not yet passed over any disturbed construction areas) would be kept separate from potentially contaminated water from construction areas, where possible. Where appropriate, interceptor ditches and other drainage diversion measures would be installed immediately in advance of any excavation works in order to collect and divert greenfield run-off around areas disturbed by construction activities. All surface water within disturbed areas would be managed in accordance with sustainable drainage system techniques, using a multi-tiered approach to provide both flow attenuation and treatment through infiltration, where possible, and physical filtration prior to discharge.</p> <p>Ditches would follow the natural flow of the ground with a generally constant depth to ditch invert. They would have shallow longitudinal gradients, where possible. Regular check-dams would be used where necessary to control the rate of run-off. The ditches would be designed to intercept any stormwater run-off and to allow clean water flows to be transferred independently through the works without mixing with construction drainage. The regular interception and diversion of clean run-off around infrastructure would prevent significant disruption to shallow groundwater flow and peatland. This would also reduce the flow of water onto any exposed areas of rock and soil, thereby reducing the potential volume of silt-laden run-off requiring treatment.</p> <p>Greenfield run-off would be discharged into an area of vegetation for dispersion or infiltration, mimicking natural flows, so as not to alter downstream hydrology or soil moisture characteristics.</p>	Section 8.9 EIAR Volume 2	ECoW and Appointed Contractor During Construction
<b>Ornithology (Chapter 9)</b>				
O1	Disturbance to bird nests (including potential Schedule 1 birds)	<p><b>Pre-construction surveys/Timing of works</b></p> <p>Depending on when the felling work is due to be undertaken there is potential for disturbance or destruction impacts on bird nests. Currently, the felling work is due to be undertaken between February and May 2024; therefore, pre-construction surveys for nesting birds would be required to avoid destroying or disturbing nests. These surveys would cover areas where felling is required and a buffer of 50 m and would seek to identify the locations of any active nests within, or immediately adjacent to the working and felling areas along the Proposed Development. All pre-construction bird surveys should extend a sufficient distance out from the Proposed Development to identify any nest sites which may be within the disturbance range of the species in question. For example, pre-construction checks for general nesting birds do not need to extend more 50 m beyond the development footprint, while surveys for rare and vulnerable raptors should extend out to between 500 m and 750 m. In the event that the construction programme changes, and felling work is still carried out between January and August, pre-construction surveys for nesting birds are required. If felling works are carried out between September and December these surveys would not be required.</p>	Section 9.7, EIAR Volume 2; Technical Appendix 2.3: SHE Transmission Species Protection Plans (SPP), EIAR Volume 4.	Appointed Contractor During Construction Post-construction/ Operational

<b>Table 13.1: Schedule of Environmental Mitigation Measures</b>					
		<p>For the entire overhead line route, surveys for rare and vulnerable breeding raptors and divers, i.e. hen harrier, merlin, short-eared owl, black-throated diver and red-throated diver would be conducted in the year prior to works. The surveys should focus on confirmed or probable territories, identified in the survey work already undertaken and should be expanded to include other areas of potentially suitable habitat. The surveys should seek to locate any new nest sites and advise the Applicant and their Principal Contractor of required mitigation measures in line with the Bird SPP. These surveys should be undertaken in the breeding season preceding construction commencing, and should be undertaken following consultation with LHRSG.</p> <p><b>Exclusion zones</b></p> <p>In the event that any confirmed, or suspected active nests are identified within range of potential disturbance, a works exclusion zone would be established around the nest site to a distance as set out in the Bird SPP and as advised by the ECoW. Works would not be permitted to commence within the exclusion zone until nesting has been completed and the young have fledged, or the ECoW deems, through monitoring each stage of the breeding attempt, that the extent of the exclusion zone may be reduced.</p> <p><b>Monitoring</b></p> <p>Construction phase monitoring would be carried out by the ECoW, to ensure compliance with environmental legislation and effective delivery of mitigation measures (and licence conditions) set out in the generic and works-specific SPP. This would include monitoring any potential breeding raptor nests that could be impacted by the Proposed Development, e.g. hen harrier. Additional mitigation measures would be enacted if deemed necessary as a result of monitoring.</p>			
O2	Collision risk	<p><b>Line marking</b></p> <p>There is potential for the Proposed Development to result in significant collision risk impacts on golden eagle, white-tailed eagle, black-throated diver, red-throated diver and greylag goose. This would be mitigated by installing flight diverters on the Proposed Development which are designed to make the wires more visible and reduce the likelihood of a collision. Line marking locations have been chosen by reviewing flight maps for those species for which a moderate collision risk is predicted. In particular, this focussed on lochs and lochans where black-throated and red-throated diver and greylag goose flights were recorded into or out of the waterbody.</p>	Section 9.7, EIAR Volume 2	The Applicant	Post-construction / Operational
<b>Hydrology, Hydrogeology, Geology and Soils (Chapter 10)</b>					
H1	Chemical Pollution	<p>The potential for impacts on the water environment through the release of pollutants during the construction phase would be managed through the implementation of a CEMP. The CEMP would incorporate measures to ensure that the release of sediments or pollutants to the surrounding environment is avoided. These would be detailed in the Pollution Prevention Plan (PPP) to be developed by the Appointed Contractor.</p> <p>The storage of potentially contaminative materials (oils, cements/ grouts) shall be carried out at least 50 m from watercourses. Fuels, oils or chemicals stored on-site shall be sited over an impervious base and in accordance with the <i>Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) (CAR)</i>.</p>	Section 10.8, EIAR Volume 2	Appointed Contractor	During Construction
H2	Sedimentation and Erosion	<p>Sediment capture methods would be detailed in the CEMP and shall direct sediment laden runoff from disturbed or excavated ground through appropriate treatment trains. These would be detailed in the PPP to be developed by the Appointed Contractor.</p> <p>Where required, interceptor ditches shall divert waters to locations downstream of proposed excavation or soil disturbance works associated with the installation of pole foundations and the development of construction compounds. These would be specified in a PPP that would be compiled by the contractor in accordance with SEPA guidance<sup>1</sup></p>	Section 10.8, EIAR Volume 2	Appointed Contractor	During Construction
H3	Alteration to Surface Water Flows and Runoff	<p>Details of construction phase Sustainable Drainage Systems (SuDS) would be included in the PPP and the final CEMP, as required, to provide a surface water management and treatment train that would mitigate potential adverse impacts. Measures would seek to maintain pre-development runoff rates. A full SuDS solution would be developed prior to construction. Construction site plans and proposed drainage measures shall form a PPP that would be compiled by the Appointed Contractor.</p> <p>At the limited number of locations where a track is required to cross a watercourse, or where other infrastructure is necessary within 50 m of a surface watercourse, the installation of SuDS measures shall be supervised by the ECoW during the construction phase of works. The requirement for monitoring of water quality within watercourses downstream of the Proposed Development would be agreed with SEPA. Procedures for this would be detailed in the final CEMP. Where applicable, prior to commencement of work, works baseline water quality monitoring shall be carried out (both upstream and downstream) and repeated during the construction works at agreed intervals. Any requirement for surface water abstraction would be completed in accordance with the CAR.</p>	Section 10.8, EIAR Volume 2	Appointed Contractor	During Construction
H4	Alteration to Groundwater Flows	<p>The CEMP would include measures to minimise potential adverse effects related to surface water and groundwater discharge, including impacts associated with dewatering which may arise from the excavation of foundations. Therefore, the Appointed Contractor shall be required to meet regulatory requirements and implement best practice measures as set out in SEPA planning guidance.</p>	Section 10.8, EIAR Volume 2	Appointed Contractor	During Construction

<sup>1</sup> Supporting Guidance (WAT-SG-75), Sector Specific Guidance: Construction Sites February 2018, URL: <https://www.sepa.org.uk/media/340359/wat-sg-75.pdf> [Accessed 15/08/22]

Table 13.1: Schedule of Environmental Mitigation Measures					
		The requirement of groundwater monitoring would be detailed in the final CEMP. This may include baseline groundwater quality monitoring which would be repeated during construction. Any requirement for groundwater water abstraction will be completed in accordance with the CAR.			
H5	DWPAs and Public Water Supply Assets	A minimum buffer strip of six metres should be incorporated between any watercourse or waterbody and proposed secondary access tracks to protect water quality. The contractor would request Scottish Water asset location mapping prior to detailed design of any permanent infrastructure or excavations.	Section 10.8, EIAR Volume 2	Appointed Contractor	During Construction
H6	GWDTEs	Although the potential for habitats to be GWDTE is limited, prior to, and during, the construction phase of the Proposed Development under the advice of an onsite ECoW, the potential to micro-site infrastructure (within the agreed limits) to avoid sensitive habitats would be investigated.  Although not GWDTE, it is considered that the maintenance of quality and quantity in surface water distribution across habitats will be important. Suitable drainage and surface water management measures would be implemented, utilising SuDS where possible, to maintain hydrological connectivity in peatland and wetland habitats and prevent deleterious impacts on surface water distribution. Such suitable drainage and surface water management measures would be addressed in a CEMP for the site to be developed by the Appointed Contractor.	Section 10.8, EIAR Volume 2	Appointed Contractor	During Construction
H7	Private water supplies	Detailed pre-construction PWS risk assessments would be completed by the Appointed Contractor and a Site specific PWS Protection Plan would be developed. This would confirm the locations of the PWS sources on-site, detail pre-construction monitoring of water quality required and appropriate pollution prevention measures.  During construction, water quality would be monitored. If the quality and/or quantity of water to the PWS is impacted by the Proposed Development, a temporary alternative water source would be supplied until remedial works are completed.  Water quality would be monitored immediately following construction to confirm the PWS is unaffected.	Section 10.8, EIAR Volume 2	Appointed Contractor	During Construction
H8	Watercourse crossings	Construction shall be carried out in accordance with SEPA best practice <sup>2</sup> and SEPA Guidance for Pollution Prevention <sup>3</sup> to prevent direct siltation of watercourses.  The detailed design of each watercourse crossing would seek to maintain hydraulic conveyance to prevent any restriction of flows, as well as allowing the free passage of mammals and aquatic ecology. Therefore, it is proposed that each watercourse crossing would have sufficient capacity to pass the climate change-adjusted 1 in 200 year (0.5% AP) flood including an allowance for partial blockage.  So that all drainage measures employed during the construction phase of the Proposed Development are maintained appropriately and remain effective, the performance of the drainage measures would be monitored. The drainage management works would, therefore, be supervised by the ECoW and be in accordance with the CEMP.	Section 10.8, EIAR Volume 2	Appointed Contractor	During Construction
H9	Peat and Carbon Rich Soils	Key measures to minimise and prevent impacts to peat and carbon rich soils are included within the OPMP ( <b>Technical Appendix 10.2: Outline Peat Management Plan, EIAR Volume 4</b> ) and PLHRA ( <b>Technical Appendix 10.3: Peat Landslide Hazard Risk Assessment, EIAR Volume 4</b> ). These set out good practice measures and specific mitigation measures to minimise the potential effects on peat and carbon rich soils. Specific mitigation to be included to minimise and reduce potential impacts on peat and carbon rich soils include: <ul style="list-style-type: none"> <li>Proposed construction access would use non-intrusive methods such as use of 'bog mats' and other methods to minimise damage and compaction of peat. Access tracks located over deep peat (&gt;1 m in depth) could be 'floated' to minimise the volume of excavated peat;</li> <li>Poles located over deep peat would be constructed using a 'bog shoe' foundation solution where practicable to minimise the peat excavation and disturbance required. Working areas will be constructed using a layer of geotextile and stone over the peat, which can be reinstated on completion;</li> <li>Avoid cutting trenches or aligning excavations across slopes (which may act as incipient back scars for peat failures) unless appropriate mitigation has been put in place;</li> <li>Awareness of peat instability and pre-failure indicators would be incorporated in site induction, tool box talks, and training to enable all site personnel to recognise ground disturbances and features indicative of incipient instability;</li> <li>Peat and carbon rich soils would be stored temporarily on site during the works in accordance with the OPMP to avoid desiccation and creation of run-off; and</li> <li>All peat and carbon rich soils excavated during the works would be used for the reinstatement at the pole locations, resulting in no surplus excavated peat.</li> </ul>	Section 10.8, EIAR Volume 2	Appointed Contractor	During Construction

<sup>2</sup> SEPA, 2010. Engineering in the Water Environment: Good Practice Guide, River Crossings.

<sup>3</sup> SEPA 2018. GPP5: Works and Maintenance in or Near water:



<b>Table 13.1: Schedule of Environmental Mitigation Measures</b>					
H10	Site Maintenance	A maintenance programme with regard to site plant and infrastructure would be implemented by the Appointed Contractor. A maintenance schedule would be developed for all SuDS and drainage assets installed at construction stage so that the function and benefit provided by the asset remains for the lifetime of the Proposed Development.	Section 10.8, EIAR Volume 2	The Applicant	During Operation
<b>Traffic and Transport (Chapter 11)</b>					
T1		<p>The following measures would be implemented through a Construction Traffic Management Plan (CTMP) during the construction phase for the Proposed Development. The CTMP would be agreed with CnES prior to construction works commencing. The CTMP would include the following measures:</p> <ul style="list-style-type: none"> <li>• Deliveries to Site shall be scheduled to the working times of the Site. Any deliveries to be made out with these working times would be reviewed on a case by case basis taking into account a number of factors including, time and impact on local community, noise and traffic disruption;</li> <li>• Preparation of a Path Management Plan to minimise potential conflicts between path users and construction activities. This would include appropriate signage, diversions routes (if required), crossing facilities and warning signs;</li> <li>• Tool box talks to assist construction staff in how to avoid conflicts with walkers and equestrians, including instructions on how to pass horses in safety;</li> <li>• Use of scaffolds where the Proposed Development is to cross major roadways to allow cable stringing to occur in safety and to minimise traffic delays;</li> <li>• Adoption of a voluntary speed limit of 20 mph for all construction vehicles through Leurbost, Balallan, Kinloch and Tarbert villages;</li> <li>• 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;</li> <li>• Unless otherwise agreed with CnES, construction activities would in general be undertaken during daytime periods only. For weekdays, this would involve work between approximately 07:00 to 19:00 in the summer and 07:30 to 17:00 (or as daylight allows) in the winter. On Saturday the working hours would be approximately 07:00 to 17:00;</li> <li>• All reversing operations and the movement of plant/deliveries which will take place on-site will be supervised and controlled;</li> <li>• Appropriate traffic management measures would be put in place on A859 in the vicinity of the access junctions to the Site in order to avoid conflict with general traffic, subject to the agreement of the roads authority. Typical measures would include HGV turning and crossing signs and / or banksmen at the site access and warning signs;</li> <li>• The arrangements for Traffic Management (TM) will be communicated to the public and local community directly affected by construction traffic via the Applicant's public liaison officer. Other methods of communication which may be implemented by the project team include letter drops to landowners in the immediate vicinity to planned TM works, online update notices communicated via the Applicant's website and local press releases;</li> <li>• All visitors and new staff must undertake a Site induction. During the induction, personnel will be made aware of the Traffic Management Plan and Site rules; and</li> <li>• All drivers would be required to attend an induction to include:               <ul style="list-style-type: none"> <li>– A tool box talk safety briefing;</li> <li>– The need for appropriate care and speed control;</li> <li>– A briefing on driver speed reduction agreements (to slow site traffic at sensitive locations through the villages); and</li> <li>– Identification of the required access routes and the controls to ensure no departure from these routes.</li> </ul> </li> </ul> <p>CnES may request that a Section 96 agreement to cover the cost of abnormal wear on its road network is made.</p> <p>Video footage of the pre-construction phase condition of the construction vehicles route would be recorded to provide a baseline of the condition of the road prior to any construction work commencing. This baseline would inform any change in the road condition during the construction phase. Any necessary repairs would be coordinated with CnES's roads team. Any damage caused by traffic associated with the Proposed Development during the construction period that would be hazardous to public traffic would be repaired immediately.</p> <p>Damage to road infrastructure caused directly by construction traffic would be made good and street furniture that is removed on a temporary basis would be fully reinstated.</p> <p>There would be a regular road review and any debris and mud would be removed from the carriageway using an onsite road sweeper to ensure road safety for all road users, where works are located close a proposed access junction onto the A859.</p>	Section 11.8, EIAR Volume 2	Appointed Contractor	During Construction



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TRANSMISSION